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THE GROWTH OF THE BOSTON CITY HOSPITAL FROM 1864 TO THE PRESENT

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BOSTON

SEVENTY-FOUR years ago the citizens of Boston started something new in community ventures. They built a public hospital, "designed," in the words of the first annual report of its trustees, "to do the greatest possible good to the greatest possible number."

The traditional span of a man's life having passed it seems timely to try to analyze and suggest, on a statistical basis, how well the Boston City Hospital has succeeded in living up to the high purposes and hopes of its founders.

Because figures are notoriously cold, it is impossible by the geometry of a statistical curve to estimate pain allayed and suffering made supportable. But a little thought will enable any mind to penetrate through the impersonal figures recorded here and to perceive the human values they represent. In the gradual but steady expansion and improvement of the Boston City Hospital eloquent proof is offered that the founders' aim, while always falling short of perfect fulfillment, is still the activating ideal of the hospital and the inspiration of its staff.

From the present complicated institution with its multiplicity of departments and services and clinics and offices, it seems a far cry back to the unpretentious beginnings of 1864. Yet in these years the hospital has treated more than a million patients. The demand for its services has grown so much that while Boston ranks ninth in population in the United States, the Boston City Hospital ranks sixth in size and fourth in the number of patients treated. From 1864 to the present, while the population of the city has increased four and a half times, the hospital admissions have increased over forty times (Chart 1). And since the average daily number of patients has skyrocketed the absolute number of deaths has naturally increased, although the relative mortality has been definitely lowered.

Reproducing as it does in miniature the growth of the nation at large, the story of the Boston City Hospital has been one of rapid expansion and sensitive adjustment to the needs of those it serves. The hospital was dedicated on May 24, 1864, with special exercises attended by all members of the municipal government. Before its doors were thrown open to the public on June 1 final ceremonial inspection was made by Admiral Lessofsky and the officers of the Russian fleet, which was then lying in Boston Harbor.

From the very beginning, the new institution took upon itself responsibilities and obligations which might well have severely taxed a more mature enterprise. During its first full year of operation, 1865, it cared for 1066 patients, 18 of whom gave their occupation as "gentleman." After running five years it was caring for 3054 patients yearly. In 1934, after seventy years of service, more than 43,000 cases were cared for on its wards. More recent years report correspondingly large numbers.

During the first year of complete operation the daily average number of patients was 114. By 1897 this average had increased to 463. In 1932 it was 2155. In 1870, the first year for which accurate figures are available, patients stayed in the hospital on an average of 27 days. Fifteen years after its opening the average number of days' stay at the Main Hospital was 22. At the present time this has been lowered to 11.

Nevertheless, multiplicity of function alone, or mere numerical increase in the number of patients treated, is not a true index of an institution's real development. Progress on paper can often be achieved by a lowering of the standards of service or by a retreat from hard-won levels of efficiency. Thus, while there is no difficulty in showing, by means of a simple chart, the numerical growth of the Boston City Hospital, the true significance

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of the data lies in their demonstration of the increased effectiveness of the hospital, paralleling its growth in numbers.

This development can be clearly indicated by fully considering the growth of the hospital as indicated by the increase in the daily average number of patients cared for and in the total number

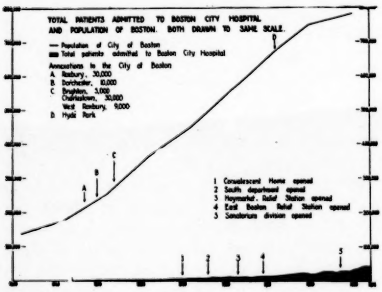

TOTAL PATIENTS ADMITTED TO BOSTON CITY HOSPITAL AND POPULATION OF BOSTON, BOTH DRAWN TO SAME SCALE.
— Population of City of Boston
Total patients admitted to Boston City Hospital
Annexations to the City of Boston
A. Roxbury, 30,000
B. Dorchester, 10,000
C. Brighton, 3,000
Charlestown, 30,000
West Roxbury, 9,000
D. Hyde Park
1 Convalescent Home opened
2 South department opened
3 Haymarket Relief Station opened
4 East Boston Relief Station opened
5 Sanatorium division opened

Chart 1.

of days' stay of all patients, taken in connection with the reduction in the average number of days' stay and in the mortality rate.

First to be considered are the data which describe so vividly the numerical growth of the hospital. As has been stated, during 1865, the first full year of operation, 1066 patients were treated. During 1933 the hospital cared for 43,064 patients — equal to nearly one half the present population of Nevada and forty times as many patients as were treated in its first year.

Examples may be reported, taken at ten-year intervals, of the number of patients the hospital has cared for:

YEAR	NO. OF PATIENTS
1870	3,054
1880	3,995
1890	6,510
1900	11,167
1910	12,970
1920	19,475
1930	32,968
1933	43,064

From these figures it is seen that during the first thirty years the growth in the number of patients admitted was gradual and proceeded at an even rate. From 1900 to 1920 this growth was accelerated. Since 1925 there has been a strikingly disproportionate increase, represented by nearly 2000 additional patients per year. The following table shows the average annual increase in admissions by fifteen-year periods.

PERIOD	AVERAGE EASE
1865-1880	
1880-1895	3
1895-1910	529
1910-1925	914
1925-1933	1962

On considering these figures, one is immediately struck with the difference between the growth of the Boston City Hospital and that of other public institutions — the Boston Psychopathic Hospital, for example. The latter has a settled policy of admitting about 2000 patients each year. As a result its rate of growth has remained practically stationary (and at full capacity) for two decades.

An examination of Chart 2 reveals the growth in the number of patients admitted to the Main Hospital alone and to the South Department — the department of contagious diseases — alone, as well as the total of their combined numbers. As is the case with the number of patients admitted to all departments, the growth in the Main Hospital during the first thirty years was gradual.

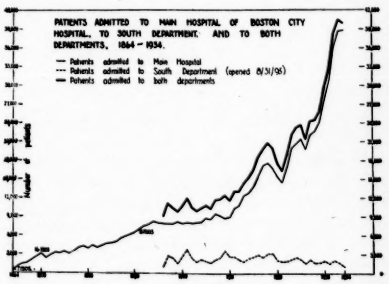

PATIENTS ADMITTED TO MAIN HOSPITAL OF BOSTON CITY HOSPITAL, TO SOUTH DEPARTMENT, AND TO BOTH DEPARTMENTS, 1864 – 1934.
— Patients admitted to Main Hospital
--- Patients admitted to South Department (opened 8/31/96)
— Patients admitted to both departments
Number of patients

Chart 2.

The next twenty years witnessed a more rapid inflow, while since 1920 the rate growth in numbers has been unusually large. It is interesting to note that the South Department is today admitting fewer patients than at any time in its history. This fact may be taken as evidence of the great advances that have been made in the study of infectious diseases and the increased effectiveness of the Departments of Sanitation and Public Health in the city. As public education in the control of preventable diseases becomes more widespread, and as these departments achieve a more complete public co-operation, a continued drop in the admission rate to the South Department may be expected. The South Department, though still invaluable for isolation purposes, no longer fills the need, quaintly yet persistently presented by the superintendent and trustees in the first annual report:

We would call the attention of the City Council to the subject of the speedy erection of a building of moderate dimensions, to be used as a Foul Ward. There are at almost all times in such a hospital, cases of delirium, or patients affected with loathsome diseases, requiring separation for their own proper treatment, as well as for the safety and comfort of others.

To gain an idea of the relative number of patients handled in the different departments of the hospital, the following table is made up for the representative year 1931.

	NUMBER OF PATIENTS	PERCENTAGE OF TOTAL PATIENTS
Main Hospital	30,921	86.0
Sanatorium Division	478	1.5
South Department	1,639	4.5
East Boston Relief Station	223	1.0
Haymarket Square Relief Station	2,237	6.0
Convalescent Home	305	1.0

The question naturally arises, What are the causes for this amazing hospital growth? Since the expansion of any public institution is only a function of the needs which it supplies and of the confidence which it inspires, the immediate answer to this question lies in the rapidly increasing public dependence upon tax-supported medical service, and a growing confidence in its competency which was formerly more quickly granted to private hospitals and private practitioners. Originally this dependence was more restricted to the poorer classes, but recently the economic depression has forced it upon the middle class — the white-collar group — and having tasted the apple, they find it surprisingly good. In a day when state-supported medicine is a hotly debated question, the enormous recent growth of the Boston City Hospital is a portent worthy of note.

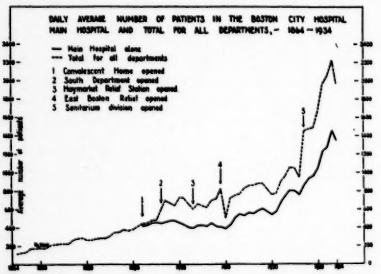

DAILY AVERAGE NUMBER OF PATIENTS IN THE BOSTON CITY HOSPITAL MAIN HOSPITAL AND TOTAL FOR ALL DEPARTMENTS, — 1864 — 1934
— Main Hospital alone
— Total for all departments
1 Convalescent Home opened
2 South Department opened
3 Haymarket Relief Station opened
4 East Boston Relief opened
5 Sanitarium division opened

Chart 3.

One may well wonder what social trends are responsible for this growth. Is it due to the disproportion between the mounting cost of medical care and the constantly low yearly income of the majority of families served by this hospital? Illness is apparently not increasing, and public education on the use of hospitals is obviously becoming more widespread. These are questions that need further study from every angle, — economic, sociologic and governmental, — and from the point of view of public relations. In connection with these questions, the following facts may be considered:

In the Out-Patient Department of the Boston City Hospital during the months of November and December, 1937, 5508 patients were interviewed by social workers before being admitted for treatment. Of these, 146 were steered elsewhere because they were not residents of Boston; *2312 were receiving definite aid in one form or another.* On analyzing the incomes, it was found that 1166 patients had incomes under $1000 a year, 951 had incomes of between $1000 and $1500, and 321 each received $1500 or over. One thousand five hundred and five patients, or a little over 25 per cent, volunteered the information that they would be willing to pay an admission fee to the Out-Patient Department of from ten to twenty-five cents. Approximately 51 per cent of those applying for admission fell into the aided class (plus pensioners and city employees). Of the remaining 2882 patients, 2117 had incomes so low that taking into consideration the size of the family, the probable length of medical treatment, and other factors, they were unquestionably eligible for outpatient care. The percentage of patients on relief dropped 8 or 9 per cent from the previous year, but the salaries received by the unaided patients still were so close to the borderline that, with past debts (in some cases) to pay off, they were obviously eligible for care in the clinics.

Other factors have of course entered intimately into the growth of the Boston City Hospital. With advancing knowledge of medicine, the successful treatment of disease has come to depend more and more on skillful nursing and on a number of mechanical and chemical accessories not available in private homes. Since city treasuries are popularly supposed to be inexhaustible, the public easily assumes that a municipally supported hospital has the best equipment and the most complete resources. And when life or health is at stake most people are willing to endure the incidental discomforts of a public hospital if they can feel assured of good treatment.

Roughly speaking, the era of greatest initial development of the hospital coincides with other important social manifestations. One of these was the unrestricted immigration tide to America from Europe, that is said to have reached two peaks prior to 1900. As these newcomers became gradually adjusted to their new environment, they developed, in classes and groups, a wide appreciation of the treasures available to them in the various public institutions — schools, hospitals and clinics.

With this enlarged view came an increased use of, and dependence on, these facilities. Just as it was not the native, indigenous stock which contributed most to the material development of metropolitan districts, neither was it the same stock which caused the noteworthy leap in hospital admissions.

The following facts, of special pertinence to the questions mentioned above, should be emphasized (Chart 1):

1. From 1860 to 1900 the population of Boston increased threefold. The growth in the number of patients admitted to the Boston City Hospital was roughly proportionate.

2. Since 1900, while the population of Boston has increased only 1.4 times, the number of patients admitted to the hospital has increased 4 times.

3. In the last ten years the patients admitted to the hospital have increased by more than 25 per cent over what constituted normal average admissions prior to this period.

These observations may be interpreted as indicating that hospital facilities, whatever be the cause of the growth, have at least adjusted themselves very sensitively to the needs and demands

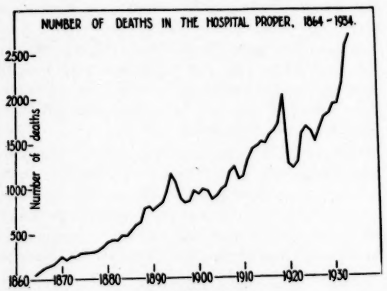


Chart 4.

of the city and at a rate far in advance of the rate of growth of the city's population.

The changes which have taken place in the average number of days' stay in the hospital are in part due to the process of specialization in the treatment of patients as it occurs in modern hospital practice. The contagious cases are handled by the South Department. The Convalescent Home* took care of patients not yet able to return to their work. The Sanatorium Division provides only for tuberculosis cases. This division of function leaves the Main Hospital free for surgical and medical cases where isolation is not required. As a result, the average length of stay in the Main Hospital has decreased from 27 days in 1871 to 11 days at the present time. At the Convalescent Home the length of stay decreased from 20 days in 1895 to 15 days in 1930. The length of stay in the Sanatorium Division, averaging as it does 6 months, naturally increases the hospital average when all departments are taken together. This department was opened in 1927 and in 1933 the length of stay averaged 198 days. In the South Department the length of stay has increased slightly from 30 days in 1900 to 32 days at the present time. Since 1905 the average stay at the Haymarket Square Relief Station has decreased from 2.3 days to 1.5 days. At the East Boston Relief Station there has been a decrease from 3.8 days in 1910 to 2 days.

As evidence of the increased effectiveness of the hospital, the lowered mortality rate is noteworthy. Death most frequently occurs in the hospital when

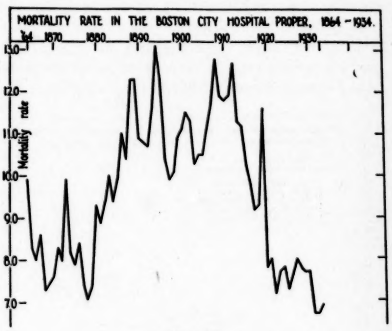


Chart 5.

patients have been brought there in a dying condition — either as a result of severe accident or because of acute attacks of serious illness. Chart 4 shows the number of deaths in the hospital proper from 1864 to 1934. There was a gradual and even rise in number until 1892, and a considerable rise in 1894. There was a subsequent gradual rise until 1919; then a sharp increase occurred, due to epidemic influenza. From 1920 to 1922 there was a decrease in number, but since 1922 there has been a rapid increase. In the year 1932 the number of deaths totaled 2700. Nevertheless, despite this rise in the absolute number of deaths the mortality rate for the hospital proper has declined (Chart 5). Since 1864 the Boston City Hospital's death rate has varied from 6.7 to 13.1 per cent of total admissions. From 1894 to 1919 it averaged about 11.5 per cent. In 1920 it fell off to 7.9 per cent and has remained below 8.0 per cent since then.

*The Convalescent Home has not been open for the last few years.

For the last few years the rate has been below 7 per cent.

Ranking today as the greatest hospital — in size and physical equipment — in one of the most important medical centers of this country, the Boston City Hospital is entitled to considerable praise for its honorable record of achievement in the past seventy-four years. It started very unpretentiously, and few would have imagined that in its development it would proportionately far outstrip the city it serves. The elasticity of its response and the sensitivity of its reaction to public need have now for many years been a revelation of the high seriousness with which the officials and staff have chosen to regard their task.

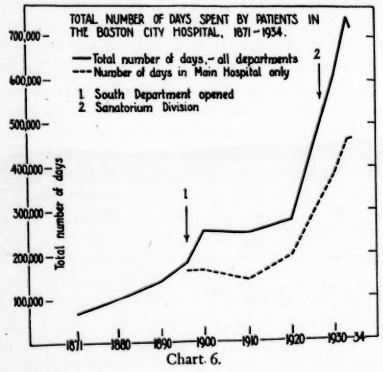


Chart 6.

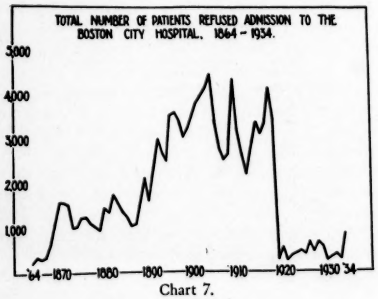


Chart 7.

In the period of its first seventy years the hospital has treated 1,015,793 patients. Its original staff of a dozen men has grown until it now numbers nearly three hundred physicians on whom falls the daily burden of caring for the two thousand patients who are under its roof every day. As needs have arisen new services have been initiated, new equipment has been installed, and safer and more efficient buildings have been erected. Happily too, the hospital's scientific spirit has developed step by step with its rise to physical eminence. Today it attracts physicians and students from every part of the world and, with a commendable lack of provincialism, counts graduates from every leading medical school in America as members and alumni of its staff.

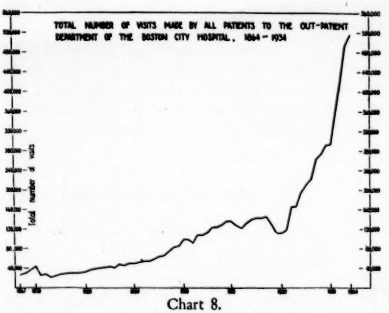
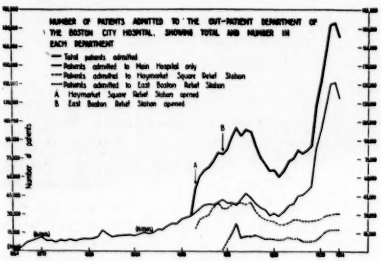


Chart 8.

All this has not been brought about by magic, though the sustained effectiveness with which it has happened at times has suggested magic. It has occurred by labor and through a system, by an ordered and natural way, starting first with human needs expressed in community life by conditions requiring special attention. The hospital was then founded; an organization and a plan were created and followed. The Boston City Hospital is, and has been from its beginning, a co-operative undertaking between citizen and taxpayer, councilor and mayor, superintendent, trustees, medical, surgical, nursing and social-service staffs, hospital personnel and patients.


NUMBER OF PATIENTS ADMITTED TO THE OUT-PATIENT DEPARTMENT OF THE BOSTON CITY HOSPITAL, SHOWING TOTAL AND NUMBER IN EACH DEPARTMENT
Total patients admitted
Patients admitted to Main Hospital only
Patients admitted to Haymarket Square Relief Station
Patients admitted to East Boston Relief Station
A Haymarket Square Relief Station opened
B East Boston Relief Station opened
Number of patients
Chart 9.

In addition to the recognition naturally due the staff members, many of whom have spent the bet-

ter part of their lives in free attendance, and the credit due the nursing personnel, whose wages do not in any way repay the services it gives, special appreciation is due the two groups of men who have most directly shaped and controlled the hospital's course: they are the superintendents and the trustees of the past and present. These men have felt most keenly the responsibility they have shared, and in passing they deserve the most signal recognition for what they have done to make the hospital what it is.

Physicians and surgeons who have grown old in the service of suffering humanity insist that, in ministering to sick people, no slightest help that can be given them is without value or without benefit. Good nurses know that there can be healing in the smoothing of a pillow and charity in the combing of a patient's hair. So it is when one thinks of seventy-four years and more than a million sick people: one can catch some glimpse of all that this hospital has meant in terms of pain allayed, of suffering made endurable, and of men and women healed and made well again and restored to those who love them.

Suffering humanity is always appealing humanity. That is why the best title which the Boston City Hospital has won in all these years is that it has always been instant to answer the call of those who needed help, and unimaginably generous of itself and the service it is able to provide.

384 Commonwealth Avenue.

ASCORBIC ACID REQUIREMENTS IN EARLY INFANCY

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BOSTON

THE Health Committee of the League of Nations has recently set forth in its report[1] that "vitamin C should be given as from the age of three months," and that "the quantity given to children should correspond to a daily dose of not less than 5 mg. of ascorbic acid."

In the past we have had to rely on trial-and-error methods to ascertain the age level at which vitamin C should be added to the diet of artificially-fed infants, and likewise the time when the need arises in infants at the breast. Nor have we ever had a clear conception of the amount of antiscorbutic substance needed to prevent vitamin C deficiency. By the administration of pure ascorbic acid and the use of the indophenol titration method for assaying the concentration of ascorbic acid in urine, milk, tissues and plasma, these questions can now be answered with a certain degree of accuracy.

Good reasons exist for questioning the validity of both the statements just quoted: that vitamin C should be given as from the age of three months, and that 5 mg. is an adequate daily dose. In the first place we know that clinical scurvy can develop before the age of three months. Thus, Jackson and Park[2] have reported the earliest case on record in an infant who died at twenty days, and Hagmann[3] has cited a case of florid clinical scurvy in a child of three months who had had no orange juice the first two months of life, after which it was started in teaspoonful amounts.

That scurvy can occur before three months is also evidenced by an analysis of the necropsy protocols of 3 premature infants, whom we had the opportunity to observe. These patients were admitted within the first three days of life, and all suffered from acute infections of the upper respiratory tract. They died at the ages of fifty-seven, twenty-six and thirty-two days, respectively. During life these infants were maintained solely on pooled, pasteurized human milk, a food which, as we shall demonstrate later, is grossly deficient in ascorbic acid. In each, definite evidences of scurvy were found histologically, although no clinical signs of the disease were observed (Figs. 1-4).

Table 1. *Liver-Reducing Power Expressed as Ascorbic Acid, According to Age Grouping (38 cases).*

AT BIRTH (8 cases) *mg. per 100 gm.*	BIRTH TO 1 MONTH (17 cases) *mg. per 100 gm.*	1 TO 4 MONTHS (13 cases) *mg. per 100 gm.*
20	7	3
23	10	4
25	11	5
27	13	5
29	16	5
53	18	7
56	20	9
75	26	11
—	28	13
Avg. 38.5	30	16
	32	16
	33	18
	38	29
	43	—
	46	Avg. 10.8
	51	
	58	
	—	
	Avg. 28.2	

These findings are complemented by the data presented in Table 1 on 38 infants coming to autopsy before the fourth month of life. Twenty-five of these babies died either at birth or before

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Read before the Regional Conference of the American Academy of Pediatrics at the Harvard Medical School, November 12, 1937.

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the age of one month; in only 1 case was the reducing value of liver tissue less than 10 mg. per 100 gm. of tissue. Of 13 infants dying between the ages of one and four months, however, no less than 7 showed such a low value.

Although the data obtained by the assay of liver tissue, as well as that of urine and food, contribute much to our information regarding vitamin C deficiency, they must, as yet, be considered as somewhat qualitative rather than precisely quantitative. Further studies must be made before we can state positively to how great an extent the reducing substances in such specimens are actually representative of ascorbic acid. Nevertheless, the concentrations obtained in this relatively large number of infants tend to show that in the early months of life the storage in the tissues in existing circumstances may be comparatively low.

There are other data which also indicate that it is unwise to delay the addition of the vitamin C supplement until the age of three months.

Studies on adults,[4] as well as on infants[5] between the ages of four and twenty-four months, have shown that the capacity of the tissues to store vitamin C is limited to so-called saturation. At this stage ascorbic acid supplied in excess of the daily requirement is largely excreted in the urine. Even a saturated individual when placed on a scorbutic dietary for three months exhausts his tissue depots by a combination of excretory and metabolic processes. These observations undoubtedly can be extended to newborn infants.

Although the development of clinical scurvy constitutes no serious threat in the ordinary course of events, and is an insidious process requiring considerable time to become manifest, it does not seem the part of wisdom to exhaust existing depots for one, two or three months before administering adequate daily doses.

We are, therefore, led to the conclusion that the daily ascorbic acid supplement should be added to the infant's dietary early in the neonatal period — for instance, in the first week of life. This seems especially important for premature infants, for the artificially fed and for those suffering from disease. Further studies are necessary before we can establish arbitrarily the requirements of the breast-fed infant. Such requirements obviously depend on variations of vitamin secretion in human milk.

Let us now consider the facts concerning the amount of ascorbic acid which would serve to protect the organism from developing vitamin C deficiency. It must be borne in mind that doses capable of preventing florid clinical scurvy may still be far below the optimum amount needed for perfect functioning of the organism. One approach to this problem lies in the quantitative analysis of the ascorbic-acid content of cow's milk and mother's milk, since these substances comprise in the main the dietary of the newborn. In this regard it is necessary to ascertain the magnitude of vitamin content not alone in fresh milk, be it cow's milk or mother's milk, but especially in the substance just prior to consumption. As a result of numerous investigations,[6–11] the average vitamin C content of fresh mother's milk may be set at .04 mg. per cubic centimeter, as shown in Table 2. The normal baby during the first three months of life in consuming from 500 to 1000 cc. of breast milk per day will thus ingest the equivalent of 20 to 40 mg. of vitamin C.

Table 2. *Average Vitamin C Content of Human Milk as Determined by Different Investigators.*

	mg. per cc.
Wachholder[6]	.044
Kasahara et al.[7]	.045
Stoerr[8]	.030
de Haas et al.[9]	.040
Selleg and King[10]	.055
Ingalls et al.[11]	.045
Average	.043

Pasteurized cow's milk is a notoriously poor source of vitamin C. Over nine different days a random sampling of the milk supply of the Infants' Hospital revealed a vitamin C content too low to be determined, that is, less than .001 mg. per cubic centimeter.

Except when the infant nurses at the breast, the situation is not a great deal better when mother's milk is utilized. Under marketing conditions, it has to be collected, pooled, pasteurized and disbursed, processes which facilitate the oxidation of ascorbic acid. Selleg and King[10] noted the average loss in titration values for eleven samples of breast milk held in a refrigerator for eighteen hours to be 27 per cent.

Assay of pooled milk obtained from the Directory for Mother's Milk has revealed an average content of .026 mg. per cubic centimeter.[11] After pasteurization and delivery to the ward, the value averaged .003 mg. per cubic centimeter, or less than one tenth of the amount found in fresh mother's milk. Thus, it is improbable that any of the 3 infants included in this report received much more than .5 to 1.0 mg. ascorbic acid per day from such milk. It is interesting to note that the vitamin C content of 500 to 1000 cc. of such milk approximates the fully prophylactic dose for a 300-gm. guinea pig.

SUMMARY

1. Ascorbic acid nutrition is a relative term embracing several zones of vitamin depot between a protective saturation of the tissues and clinical scurvy. Scurvy can develop in infants as young as three months of age.

2. Judging from the known facts of ascorbic acid storage and utilization, it seems wisest to inaugurate the ascorbic acid supplement of artificially fed infants early in the neonatal period, rather than to defer it for several weeks.

3. Although data as to the exact daily dose desirable for small infants are meager, by inference from the amount present in breast milk and from clinical experience we may set the figure in the neighborhood of 20 to 30 mg. of ascorbic acid a day, or its equivalent in 45 to 60 cc. of orange juice.

CASE REPORTS

Case 1. K. B., a premature female infant weighing 4 lb., 8 oz., was admitted to the hospital on the first day of life after a normal labor lasting 11 hours. The father

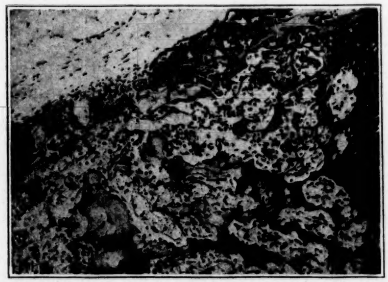

Figure 1. *Case 1. Low-power photomicrograph of the costochondral junction showing abnormal persistence of dark-staining calcified cartilage columns, with interdigitating spicules forming a lattice. The remnant of previously formed bone shows up in lighter tone. There is cessation of osteoid deposition, atrophy of the hematopoietic substance, and beginning overproliferation of stellate osteoblasts. Note the discontinuity of the cortex and several petechial extravasations of red blood cells just under the periosteum running diagonally across the upper left-hand corner of the photograph.*

and mother and three siblings were dependent on welfare aid. The mother's health was good; her diet was without milk for the last 4 months of pregnancy and "chiefly comprised hamburg and potatoes," with some vegetables, a little fruit and plenty of butter.

Examination revealed a small, well-formed, premature infant with a husky cry and good color. The lungs showed slightly impaired resonance, and the breath sounds were heard poorly. There was a moderate systolic murmur. The spleen and liver were felt 1 cm. below the costal margins. The red-cell count was 5,110,000, and the hemoglobin 107 per cent. Spinal puncture revealed no cells in the spinal fluid.

The baby was starved for 12 hours and then started on 4 cc. of 5 per cent glucose, increased 4 cc. at a time every 4 hours until 25 cc. were given. Breast milk was slowly substituted; no cod-liver oil or orange juice was given. The general condition remained good. In spite of an apparently good appetite and the absence of any apparent infection, the infant did not gain weight. After a while she did not seem to see. The eyeballs became larger than normal, and a diffuse haziness of the cornea developed; after 4 or 5 weeks, evidence of pneumonia appeared; this slowly became more marked; vomiting occurred, and the child went steadily downhill and died on the 57th day of life.

From postmortem cultures of the heart's blood, right

AGE INTERVAL	DAILY FEEDING OF PASTEURIZED BREAST MILK	APPROXIMATE VITAMIN C CONTENT
	oz.	mg.
1st week	8.0	0.7
2nd week	11.0	1.0
3rd week	12.0	1.1
4th week	13.0	1.2
5th week	13.5	1.2
6th week	13.5	1.2
7th week	13.5	1.2
8th week	9.0	0.8

and left lung and left ear *Staphylococcus aureus* and *Bacillus coli* were isolated. There were hemorrhagic and bronchopneumonic infiltrations of the lungs. Sections of the costochondral junction revealed changes consistent with scurvy, as shown in Figure 1. No evidences of vitamin A deficiency were manifest.

Case 2. W. T., a premature male infant weighing 2 lb., 8 oz., was admitted to the hospital on the 1st day of life after a "hard delivery." The father was unemployed; the mother was in good health and worked as a waitress. During pregnancy her diet consisted of orange juice, grapefruit, occasionally cereal, eggs two to three times a week, toast and tea, soup and crackers, occasionally a

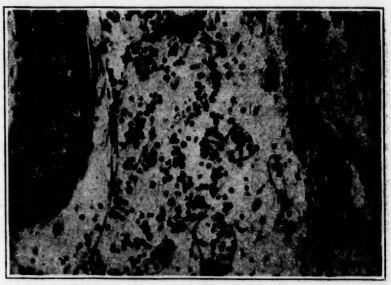

Figure 2. *Case 2. High-power photomicrograph of the marrow substance near the costochondral junction, showing atrophy of the hematopoietic substance and exposure of the loose-textured reticulum.*

meat, chicken or vegetable sandwich, and not much milk. The child was cyanotic and was resuscitated with difficulty. Examination revealed prematurity, molding of the skull and cyanosis. The case was otherwise not remarkable. The red-cell count was 4,300,000, and the hemoglobin 80 per cent. X-rays of the long bones showed no abnormalities.

As the temperature was low, the baby was placed in an incubator. During the first 2 weeks of life he vomited bile-stained material and lost weight. The stools were not remarkable, but the temperature was very unstable. The infant was transfused and given several clyses. He was fed by gavage; no cod-liver oil or orange juice was given. On the 21st day a large stool was passed consist-

ing of mucus and blood. An exploratory laparotomy was done but no intussusception or obstruction was discovered. The baby went steadily downhill until death occurred on the 26th day of life.

AGE INTERVAL	DAILY FEEDING OF PASTEURIZED BREAST MILK	APPROXIMATE VITAMIN C CONTENT
	oz.	*mg.*
1st week	1.0	0.1
2nd week	4.0	0.4
3rd week	4.5	0.4
4th week	2.5	0.2

Autopsy showed marked emaciation. The lungs were atelectatic and aspirated material was present, together with evidence of acute interstitial bronchopneumonia. There was malrotation of the colon, with a common

Figure 3. *Case 2. High-power photomicrograph of a rib near the periosteum showing the fibrin-like "scorbutic" bone which stains a deep scarlet with eosin. Atrophy of the hematopoietic substance is also evident.*

mesentery for both large and small bowel. An acute peritonitis with fibrinous adhesions was found. The histologic findings in the ribs were consistent with those of scurvy, as shown in Figures 2 and 3.

Case 3. J. B., a premature male infant weighing 4 lb., 8 oz., was admitted to the hospital on the 3rd day of life after an easy labor in the home. The father and mother and two siblings were dependent on city aid. The mother's diet and health during pregnancy were reported as good. Examination was not remarkable except for prematurity, and icterus of the skin and sclerae. The heart and lungs were normal. The red- and white-cell counts and the hemoglobin were normal. The urine was normal except for the presence of bile. X-rays of the long bones showed nothing remarkable.

The patient did moderately well during the first 3 weeks of life, with a fair gain in weight, but despite incubator care he ran a consistently low temperature. No cod-liver oil or orange juice was given. During the 4th week he showed evidence of upper respiratory infection with rapid extension to the lungs. Vomiting and refusal followed. He was given a transfusion but showed a poor reaction to it. His condition became much more worse in the 5th week and he died, after many cyanotic spells relieved by oxygen, on the 32nd day of life.

AGE INTERVAL	DAILY FEEDING OF PASTEURIZED BREAST MILK	APPROXIMATE VITAMIN C CONTENT
	oz.	*mg.*
1st week	7.0	0.6
2nd week	9.0	0.8
3rd week	12.0	1.1
4th week	10.0	0.9
5th week (3 days)	8.0	0.8

At autopsy there was an acute bronchopneumonic process in the lungs with marked bronchitis and peribronchitis. Other findings of interest included an ulcera-

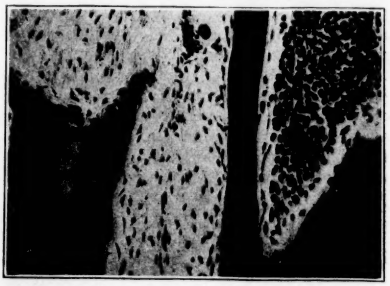

Figure 4. *Case 3. High-power photomicrograph of a region near the costochondral junction showing overproliferation and change in the morphology of the osteoblasts, as contrasted with a portion of normal-appearing marrow substance on the right.*

tive esophagitis and hemosiderosis of the spleen. The histologic findings in the ribs were consistent with scurvy, as shown in Figure 4.

I acknowledge my indebtedness to Dr. Kenneth D. Blackfan for his advice and helpful interest in this problem.

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THE EFFECT OF SULFANILAMIDE ON RHEUMATIC FEVER AND CHOREA

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IN JANUARY, 1937, shortly after Long and Bliss[1] reported the value of sulfanilamide therapy for hemolytic streptococcal diseases, we began to investigate the effect of this drug on patients ill with rheumatic fever and chorea. Such a study seemed warranted because of the close relation of rheumatic fever to hemolytic streptococcal respiratory infections.

The primary purpose of this paper is to report our observations on the effect of sulfanilamide on rheumatic fever and chorea. In addition, we have included a description of certain interesting and important toxic reactions which were encountered.

MATERIAL STUDIED

A total of 58 patients have been treated with sulfanilamide.‡ These may be divided into three groups: 16 who were moderately to severely ill with active rheumatic fever; 25 who were convalescing from rheumatic fever but still presented signs of borderline or low-grade active disease; and 17 in whom the infection had apparently become inactive. The second group includes 7 patients with active chorea but no other associated evidence of active rheumatic fever. The ages varied from four to twenty-three, and averaged eleven.

Table 1. *Incidence of Rash and Fever Associated with Sulfanilamide Therapy in 58 Rheumatic-Fever Subjects.*

DEGREE OF RHEUMATIC FEVER	NO. OF CASES	TOXIC REACTION	RASH ONLY	FEVER ONLY	RASH AND FEVER	NO RASH OR FEVER
Moderate to severe	16	14 (88%)	–	12 (75%)	2 (12%)	2 (12%)
Low-grade (including 7 cases of chorea)	25	13 (52%)	3 (12%)	7 (28%)	3 (12%)	12 (48%)
Inactive	17	4 (24%)	3 (18%)	–	1 (6%)	13 (76%)
Totals	58	31 (53%)	6 (10%)	19 (33%)	6 (10%)	27 (47%)

Sulfanilamide was administered in divided doses with a total daily dosage of approximately 6 to 7 gr. per 10 lb. of body weight during the first twenty-four hours, and thereafter 4 to 5 gr. A maintenance dose of more than 60 gr. per day was rarely given. In some cases the drug was given in initial small doses, but thereafter the amount was gradually increased each day until the usual maintenance dose was reached. The duration of therapy varied from a few days to as long as two months.

TOXIC REACTIONS

Of the total of 58 patients given sulfanilamide, 31 (53 per cent) developed toxic reactions. The chief manifestations were rash and fever. The rash was pink or red and usually maculopapular, and occurred on all parts of the body. It was most intense and commonest on the elbows and extensor surfaces of the forearms, and to a lesser extent over the knees and extensor surfaces of the legs. It was observed only once on the face and the palms. It was rarely urticarial, and in 1 case was partially purpuric. Associated with the rash there was slight, if any, itching.

The other important manifestation of this toxic reaction was fever. In some cases the rash was associated with no fever or only slight fever. Occasionally the rectal temperature rose as high as 103°F. On the other hand, fever frequently occurred without any associated rash, and in these cases was usually higher than that which accompanied a rash. These toxic reactions occurred most frequently between the seventh and the twelfth day after the beginning of the drug therapy, but were observed as early as the second and as late as the thirtieth day.

When a toxic rash or fever developed, therapy was usually discontinued and the manifestations of the reaction disappeared within one to three days. Of the 31 patients who developed reactions, 12 had a rash either alone or associated with fever. Of these, 10 were again given sulfanilamide. In some cases the second administration consisted of a single dose of one 5 gr. tablet. In 9 of these 10 cases there was a recurrence of a toxic reaction within twenty-four hours, and the drug was again discontinued. Repeated administrations of small doses of sulfanilamide caused repeated reactions, which lessened in severity and finally failed to reappear, even though the dosage was gradually increased to the original amount and was continued for as long as three weeks. The number of reactions observed in a given case before the development of tolerance varied in different individuals from two to six.

There were 2 patients who developed febrile reactions which were not severe enough to necessi-

From the House of the Good Samaritan, Boston. The expenses of this study have been defrayed by a grant from the Commonwealth Fund.

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‡The sulfanilamide (Prontylin) used in this study was supplied by the Winthrop Chemical Company, New York City.

tate omission of the sulfanilamide. In these cases the fever subsided within a few days and failed to recur, even though the administration of the drug was continued.

Finally, there were 5 patients who presented fever as the chief manifestation of a toxic reaction but who, following discontinuation of the therapy and subsequent readministration of the drug, failed to show any further untoward response.

EFFECT OF SULFANILAMIDE ON THE COURSE OF RHEUMATIC FEVER

In the accompanying table we have summarized the incidence and manifestations of toxic reactions in the three different groups of cases composing this study. It is seen that of the 16 patients with moderate to severe rheumatic fever, all except 2 showed a definite febrile reaction — an incidence of 88 per cent. In the inactive group, fever occurred in only 1 case (6 per cent), and 76 per cent escaped without rash or fever. The group of patients with low-grade rheumatic fever manifested reactions which in frequency and character were intermediate between those shown by patients with severe and those with inactive rheumatic fever.

In spite of the rash and fever, patients in the inactive or low-grade rheumatic-fever groups manifesting a toxic sulfanilamide reaction seemed generally well and had no subjective symptoms. In striking contrast is the fact that toxic reactions made those with moderate to severe rheumatic fever feel and appear quite ill. Associated with the fever there was usually a rapid pulse, and pallor. Precordial or anterior chest pain was a frequent complaint.

In no case did sulfanilamide produce any symptomatic relief or shortening of the illness. In fact, in some cases the drug seemed to increase the severity of the disease. One patient with moderately active rheumatic fever had a febrile reaction on the fifth day of therapy, and although the drug was discontinued, this reaction was followed by an immediate rheumatic fever recrudescence characterized by persistent fever, new subcutaneous nodules and congestive failure. Another patient with active disease developed a rash and fever on the tenth day of treatment. In this case, three subsequent attempts at therapy produced further toxic reactions. Tolerance to the drug finally developed and the administration of sulfanilamide was continued for two months. During this period the patient not only failed to improve in appearance but also developed new subcutaneous nodules.

Four patients were treated during a rheumatic fever recrudescence. Fever was already present when the therapy was started. In all 4 cases, associated with the giving of sulfanilamide there was a further rise in the temperature (up to 105°F.), the pulse became very rapid, and there was an increase in pallor. All the patients became quite ill in appearance, and 2 developed severe joint pains. Following the omission of the drug, the temperature fell to a lower level and the appearance of the patients improved.

Two rather ill patients with severe cardiac involvement were given sulfanilamide at the time of an acute hemolytic streptococcal upper respiratory infection. In spite of the therapy there was an immediate rheumatic-fever recrudescence in each case. Subsequently, both patients died, one forty-two days and the other forty-eight days after the respiratory infection. During this period 2 other patients were treated for such infections with aspirin instead of sulfanilamide, and in both cases these episodes were followed by fatal rheumatic fever recrudescences. Two of these deaths have been previously reported.[2]

EFFECT OF SULFANILAMIDE ON CHOREA

There were 7 patients with slight to moderate chorea who were given sulfanilamide. Except for the chorea none of these presented any clinical signs or laboratory evidence of active rheumatic fever. Two had previously had active rheumatic fever, and 1 also had clinical evidence of heart disease. The period of drug therapy varied from two weeks to one month. Although 4 of the 7 patients developed a toxic rash, they subsequently became tolerant to the drug, so that treatment could be continued. The therapy had no effect on the natural course of the chorea in any of these patients.

DISCUSSION AND CONCLUSIONS

Toxic rash and fever associated with sulfanilamide therapy of streptococcal, meningococcal and gonococcal diseases have been reported by other investigators.[3–7] Recurrence of the reaction with the subsequent administration of a single small dose of the drug, with positive skin tests in a few cases, has been offered as evidence that these toxic reactions are due to the development of a specific hypersensitivity.[4–7] The demonstration here given that tolerance to relatively large amounts of sulfanilamide may develop following the repeated administration of small doses lends further support to the hypersensitivity hypothesis. However, the evidence is still far from proving conclusively that these reactions are due to a hypersensitivity similar to that seen in serum sickness and other allergic manifestations.

Nevertheless, the demonstration that a state of

tolerance can be brought about may be of some practical importance in cases where a toxic rash or fever appears in an individual being treated with sulfanilamide for a disease which usually responds to the drug.

Hageman and Blake[4] observed febrile reactions in 21 of 134 cases being treated with sulfanilamide, an incidence of 16 per cent, while Schwentker and Gelman[3] noted a rash in 10 out of 180 patients (6 per cent). In contrast to these figures is the high incidence of toxic rash and fever in our series (53 per cent). Furthermore, an analysis of our patients shows that those with active rheumatic fever are more prone to develop febrile reactions than are those in whom the disease is quiescent. We can offer no explanation of this difference.

Recurrences of rheumatic fever following hemolytic streptococcal respiratory infections in spite of sulfanilamide therapy, and the lack of beneficial effects of this drug on the course of rheumatic fever and chorea, have been noted above. Because of these facts, and because rheumatic fever patients are very prone to develop severe febrile reactions to sulfanilamide, we believe that the administration of this drug is contraindicated in the presence of active rheumatic fever.

SUMMARY

1. Sulfanilamide was administered to 58 rheumatic-fever patients.

2. After two days or more of drug therapy a toxic rash or fever developed in 53 per cent of the cases.

3. In 9 individuals manifesting such toxic reactions, the repeated administration of small doses caused the development of a state of tolerance.

4. Patients ill with active rheumatic fever were particularly prone to develop severe febrile reactions. This fact, together with the lack of any observed beneficial results, makes the administration of sulfanilamide contraindicated in the presence of active rheumatic fever.

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VERMONT STATE MEDICAL SOCIETY

EARLY DIAGNOSIS OF CANCER OF THE CERVIX UTERI

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THE human cervix uteri consists of two entities—the external os and the internal os. By naked-eye inspection the external os is defined as that point between the narrow cervical canal and the surface of the vaginal portion (portio vaginalis) of the uterus. This we call the anatomic external os as it is determined by anatomical means. By microscopical examination, the external os is defined as that point where the non-hornified stratified squamous epithelium of the portio meets the high columnar mucinous epithelium, containing many glands, which lines the cervical canal. This we call the histologic external os as it is determined with the aid of the microscope. Normally the anatomic external os and the histologic external os coincide, but epithelium typical of the external os may extend inside or outside the normal anatomical limits. Such conditions are to be judged as pathologic and are not too rare.

Presented at the annual meeting of the Vermont State Medical Society at Saint Johnsbury, October 14, 1937.

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When the cervical mucous membrane is not limited to the cervical canal but extends out to cover, in varying degrees, the area about the external os, we have an abnormality which occurs in a certain disturbance of fetal development. This congenital eversion was found to be present in more than 20 per cent of all newborn girls by the late embryologist, Fischel, who published these findings in one of his early papers. In the first few months of extrauterine life, the misplaced cervical epithelium becomes replaced by squamous epithelium, and the abnormality is thus corrected. Only a small percentage of all women retain this congenital eversion throughout life.

On the other hand, in hypoplastic individuals with genital infantilism we find that the squamous epithelium of the external os ascends into the lower part of the cervical canal, occasionally up to half or even three quarters of its length. This variation is of great practical importance in certain cases of carcinoma. Since carcinoma of the squa-

mous epithelium generally begins next to the high columnar epithelium, the greater part of the initial carcinoma in such cases may develop by carcinomatous transformation of the squamous epithelium which lines the cervical canal. A superficial initial carcinoma without any downgrowth is thus formed, and only a comparatively small part of the carcinoma may be visible at the external os during a speculum examination. If the possibility of squamous epithelium in the cervical canal is overlooked, and a low amputation of the cervix performed, parts of the carcinoma may be left behind. To circumvent such failures, radium as a postoperative routine is indicated rather than a more radical operation.

The most frequent lesion of the cervix is erosion. By this term is meant a defect only in the epithelium as compared with an ulcer, in which the underlying connective tissue is also defective. Whereas erosion of the cervical squamous epithelium is found not too rarely, erosions of the vagina are comparatively infrequent. There are two major reasons for this. One is that the fixation of the vaginal epithelium to the underlying stroma is guaranteed by numerous dovetailing papillae, while in the cervix these papillae are rarer, thinner and smaller, and in some cases, completely absent; secondly, the mechanical tension on the height of the convex cervix is much greater than that on the concave surface of the vagina. The precipitating cause of most of the erosions is the macerating influence of a discharge, whose fluid primarily and directly acts on the cervical epithelium. This accounts for the fact that in nearly all cases of erosion a final and permanent healing can only be achieved when the causal discharge stops, and suggests that routine therapy of erosion should begin with the treatment of the discharge, that is, of the cervicitis. In the healing of an erosion at the junction of the histologic os an activity of both types of epithelium is observed: the columnar from the cervical canal and the squamous from the periphery, both trying to establish themselves on the free and naked surface of the erosion. The columnar epithelium, which consists of one row of cells only, grows more quickly and succeeds in covering most of the field of the erosion. This we call the first stage of healing. Later on, the slower-growing squamous epithelium begins to creep over or under the columnar layer. This is the second stage of healing. This process holds true for the simple erosion. However, in numerous cases the field of the erosion contains glands which are the remnants of a congenital eversion or have developed during the first stage of healing. In such cases, the second stage does not represent a complete healing, as the pressure from the secretions of the glands tends to force off the surface squamous epithelium. This produces a recurrence of the erosions. A final healing of these glandular erosions takes place only when the squamous epithelium plugs the glands permanently by sending downgrowths into them. Such a procedure, which is a physiologic process of healing based on the normal activity of squamous epithelium, takes a comparatively long time. As a general rule neither the columnar nor the squamous epithelium can grow over the ground of the erosion so long as the tissue is heavily inflamed. The therapy of the erosion therefore falls into three stages: first, the healing of the discharge; secondly, the combating of the inflammation; and thirdly, the stimulating of the potential activity of the neighboring squamous epithelium by substances that support epithelial growth, such as scarlet red.

The most important lesion of the cervix is squamous-cell carcinoma, which accounts for about 90 per cent of the uterine carcinomas, whereas the type arising from the glandular epithelium of the cervix represents roughly 2 per cent. The balance, 8 per cent, is accounted for by carcinoma of the endometrium. This squamous-cell carcinoma begins by carcinomatous transformation of the surface epithelium which takes place, not in the depth, but on the surface, and not in the field of an erosion, but in the intact epithelium. The carcinomatous surface epithelium, the so-called carcinomatous *Belag*, is generally of the same dimensions as the normal epithelium and differs only by the carcinomatous character of the polymorphous and atypical cells, with their hyperchromatic nuclei. There is always a clear-cut cleavage line between normal and carcinomatous epithelium and never a gradual transitional zone. This, the first phase of carcinomatous epithelium, can last many months or perhaps a few years. Later on, in the second phase, the carcinomatous epithelium shows downgrowths, and finally, in the third phase, ulceration take place. Prior to the third phase, the surface is smooth and naked-eye examination reveals apparently normal tissue. There are a few cases where a clinical diagnosis of carcinoma can be made. Three characteristics make this possible: first, the slightly elevated level of the carcinomatous epithelium; secondly, its finely wrinkled surface; and thirdly, its pale color. However, in a large majority of cases these characteristics are either completely absent or poorly developed.

In these cases, a biological difference between normal and carcinomatous epithelium can be utilized to establish a clinically visible difference in the two epitheliums. The normal epithelium of the cervix contains, in the superficial cell layers, large quantities of granular glycogen, which is produced and stored by the cells. Carcinomatous epithelium

loses the potency to produce as well as to store glycogen and is therefore free from this substance. To differentiate the glycogen-containing and glycogen-free areas, the cervix is brought in contact with a dilute aqueous solution of iodine. The best solution has been found to be one containing 1 gm. of iodine, 2 gm. of potassium iodide and 300 cc. of water. This solution stains the normal, glycogen-containing cervical epithelium a dark brown, whereas carcinomatous epithelium remains pale. In carrying out this procedure the following steps are employed: first, expose and clean the cervix; secondly, pour 10 or 20 cc. of the iodine solution into the vagina, being careful to distribute it throughout; and thirdly, after 40 to 60 seconds examine the cervix carefully. Brown areas are normal; pale, unstained areas are suggestive of carcinoma but are not pathognomonic. There are several other pathologic changes which also prevent the production and storage of glycogen. Hyperkeratosis from prolapse, in consequence of syphilis or of the idiopathic type, can be responsible for unstained areas. Which one of these various causes is responsible for the absence of staining must be determined histologically. Since only a biopsy of the surface epithelium is necessary, there is no need for an exploratory excision: scraping the surface epithelium with a sharp curet is sufficient. *The diagnosis can and should be made before the phase of downgrowth.*

Years of experience have proved that carcinoma usually begins in perfectly normal cervices. The test should not be confined to suspicious cases, such as elderly women with eroded cervices, but should be done as a routine procedure in all patients with gynecological complaints and, if possible, in all women, including the comparatively young. If the latter were possible, we should be able to discover carcinoma of the cervix in a phase of its development which would offer a chance of cure of nearly 100 per cent.

Discussion

Dr. Patrick E. McSweeney, Burlington: I express my thanks and appreciation to Dr. Schiller for his excellent paper. There are a few points which I should like to emphasize. The instruction of the laity in the necessity of periodic health examinations has brought many women to us in the so-called precancerous stage. By carrying out the following procedures the death rate from cancer, in my opinion, can be reduced 50 per cent.

First, every woman past the age of thirty-five should be examined vaginally every six to eight months. Visualization of the vagina and cervix by speculum is a necessary part of the examination.

Secondly, women past the age of thirty-five who have borne children should undergo some method of surgical repair of the cervix, if indicated.

Thirdly, vaginal discharge should be traced to its origin and cleared up if possible. Vaginal discharge is a frequent cause of erosions, which in turn may be precancerous lesions.

Fourthly, early cancer of the cervix can best be treated by radium (2000 to 3000 mg. hours).

Fifthly, advanced cases of cancer of the cervix are best treated by radium (4000 to 6000 mg. hours).

DISTURBANCES OF BLADDER FUNCTION IN PERNICIOUS ANEMIA

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BOSTON

Too little attention has been directed to the fact that disturbances of bladder function are among the frequent manifestations of neurologic involvement in pernicious anemia. Woltmann[1] in 1919 published the first statistical study of the subject, and reported from his series an incidence of bladder involvement of 13.6 per cent; reference to vesical complications had been made in earlier contributions by Bowman,[2] Taylor[3] and Billings.[4] Goldhamer and his collaborators,[5] in 1934, emphasized the high incidence of vesical dysfunction in pernicious anemia, while Hyland and Farquharson,[6] in a recent excellent contribution, have reported a 21 per cent incidence in a study of 172 cases. On the other hand, Caulk[7] did not record a single case of pernicious anemia with bladder disturbance in a series of 500 cases of so-called cord bladder, for which Smith and Engel[8] have suggested the more appropriate term "neurogenic vesical dysfunction." Kretschmer[9] in 1921 discussed this aspect of the disease in the urological literature. There have been no other urological papers on the subject.

With improved neurological diagnosis, the advent of liver therapy and the recent advances in the art of cystometry, further investigation of this most important phase of pernicious anemia might well have been anticipated. It is the purpose of this paper to emphasize the importance of recognizing vesical dysfunction in this disease, and to describe briefly its general features. To be sure, the common occurrence of bladder disturbances in men

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of prostatic age, the frequency of urinary symptoms in the female and the effects of infection of the urinary tract are factors which must be evaluated before a definite diagnosis of true neurogenic vesical dysfunction in pernicious anemia can be established; but the number of cases recognized would be materially augmented if in taking the history a detailed questioning of the patient were insisted on in order to detect those symptoms which might be the signal of vesical involvement, and if some definite plan of urological investigation were carried out. By this program many cases of asymptomatic or preclinical vesical dysfunction would be diagnosed.

Before discussing the urinary tract disturbances, it is essential that we be cognizant of the underlying pathology of the disease. It is well recognized and generally accepted that neurologic manifestations in pernicious anemia are dependent on pathologic changes in the posterior and lateral columns of the spinal cord. It is obvious that, as a result of such changes, interference with the normal physiology of the bladder will occur in many individuals, and that they will present the signs and symptoms of neurogenic vesical dysfunction.

Symptoms of vesical dysfunction in pernicious anemia depend in great measure upon the stage of the disease in which the patient is first seen and upon the presence or absence of infection of the urinary tract. It should be emphasized that definite bladder involvement may be present with symptoms referable to the urinary tract so mild that no significance may be attached to them either by the patient or by the examining physician, or the patient may be seen in the asymptomatic stage, at which time a diagnosis of vesical dysfunction can be made only by cystometric study. In most cases the earliest symptom of such dysfunction is bladder difficulty. This may present itself as initial retardation or hesitancy, diminished force of the urinary stream, terminal dribbling or the sensation of incompletely emptying the bladder. Such symptoms are, of course, also consistent with obstructive changes at the bladder neck. As impairment of vesical sensation progresses, the individual becomes less conscious of bladder fullness, and the interval between voidings is prolonged. Vesical distention and urinary retention increase, and finally overflow incontinence develops. Frequency, urgency and painful urination are encountered with the advent of infection, which is frequently the result of injudicious catheterization. Renal pain, chills, fever and toxemia indicative of upper urinary tract involvement develop in many cases and an advanced pyelonephritis commonly results. It should be noted that marked renal damage can occur in these patients in the absence of local signs or symptoms referable to the kidneys. In a series of postmortem examinations on pernicious-anemia patients, Goldhamer et al.[5] found renal damage in 83 per cent of the group.

The recognition of neurogenic vesical dysfunction in patients suffering from pernicious anemia is at times extremely difficult, especially in the early and borderline groups. Prompt diagnosis is essential, however, and the timely institution of effective treatment is imperative so that the progress of vesical dysfuncton can be arrested and further damage to the bladder prevented. Where we are dealing with an atypical or relatively normal blood picture, the diagnosis of primary anemia may be established by urological study. A definite program of study should be carried out directed to the differentiation of the obstructed and the neurogenically disturbed bladder. It must be understood that they may coexist in many cases. It is well known that bladder paralysis due to spinal-cord disease is most frequently produced by tabes dorsalis, and this factor must be definitely excluded. Cystoscopy and cystometry are invaluable. Inspection of the bladder outlet is particularly helpful in proving the absence of definite obstruction as the chief factor in the urinary story.

The appearance of the bladder itself in pernicious anemia is not characteristic. As might be expected, it resembles in every particular the "tabetic" bladder and presents the picture of diffuse fine trabeculation, diminished sensibility to instrumentation, increased tolerance to distention and a sluggish expulsive force. The rectal sphincter is in many instances relaxed. Cystometric examination is the most informing diagnostic procedure, as the response of the bladder musculature to a process of gradual stretching and the patient's sensory reaction to its filling are the most delicate criteria of neurogenic disturbance, and the finest index of neurogenic improvement following the institution of liver therapy. In the pernicious-anemia bladder, the normal gradual ascendancy of the pressure curve becomes flattened in various degrees, the first indication to void is prolonged, and the maximum voluntary pressure is diminished.

Marked urinary disturbances may predominate in some cases, with the result that the patient first consults the urologist because of symptoms referable to the genitourinary tract, and the latter must be careful not to overlook the underlying primary disease. On the other hand, all cases of pernicious anemia, with or without apparent neurologic involvement and whether or not presenting an atypical blood picture, should be studied with the possibility of a preclinical or early neurogenic bladder in mind. Attention must be directed particularly

to this type of case as it is here that early diagnosis may be missed.

There has been some diversity of opinion as to the efficacy of liver therapy on the neurologic lesions of pernicious anemia. However, recent studies, notably those by Hyland and Farquharson[6] and by Strauss and his co-workers,[10] have shown that adequate liver therapy can prevent the development of central-nervous-system involvement, and that if such changes have taken place, it can arrest and cause regression of the process. Certainly, intensive, prolonged and adequate parenteral liver therapy should be the watchword in cases with vesical disturbances. Unless the institution of treatment is prompt and adequate, especially when the lesions are well established, the detrusor may become so atonic that its contractility is permanently lost, even though the cord injury may be reparable. A specific program of urological therapy is not indicated in the earlier stages, although general measures should be employed, directed to the prevention of urosepsis and of deteriorative changes in the upper urinary tract. As vesical dysfunction progresses and bladder symptoms develop, accompanied by urinary retention, attempts to improve the expulsive power of the detrusor by medication and education should be made. More drastic measures are essential when we are dealing with an infected bladder and when the clinical picture suggests a pyelonephritis or an impending uremia. In this group, continuous vesical drainage must be accomplished either through the inlying catheter — a hazardous procedure — or by suprapubic cystostomy. Tidal drainage as described by Munro and Hahn[11] is of great value in these patients.

Case 1. An American male, aged 61, entered the Blood Clinic of the Carney Hospital on July 30, 1937, complaining of numbness of the extremities and a staggering gait of 2 years' duration. There was a history of gradual loss of weight and strength, a sore tongue, some gastric distress and recent dyspnea and palpitation. The patient also experienced difficulty in initiating the flow of the urinary stream, had a sensation of incomplete emptying of the bladder, and had terminal dribbling. The symptoms had been progressive. The most annoying feature of the illness was the staggering gait.

Physical examination showed a fairly well-developed and well-nourished man with a very sallow complexion. The hair was gray. The tongue was pale, smooth and glossy. There was marked edema of both lower extremities. The rectal sphincter was slightly relaxed. The prostate was small, soft and benign. The vibratory sense was absent in the upper and lower extremities. The gait was ataxic. The position-sense test of finger to nose was satisfactory; that of heel to heel was poor. The Romberg test was positive. Reflexes of the biceps, triceps and extensors were equal and active; the knee and ankle jerks were absent. The Babinski was doubtful. The sensorium was clear. There was definite weakness of the upper and lower extremities. The red-blood-cell count was 1,530,000, the white-blood-cell count 1600, and the hemoglobin 48 per cent. On smear there was definite macrocytosis; no nucleated red cells were seen; the polymorphonuclears numbered 49 per cent, lymphocytes 47 per cent, eosinophils 3 per cent and monocytes 1 per cent. A blood Wassermann test was negative. The urine was clear, amber and acid, with a specific gravity of 1.018. There was no albumin and no sugar. The sediment contained occasional white blood cells and epithelial cells. The culture was negative. The residual urine measured 15 cc. Cystometry showed a somewhat atonic bladder with the initial desire to void after 350 cc. had been injected with a resulting intravesical pressure of 14 mm. of mercury. The maximum voluntary pressure was 32 mm. at 480 cc. Gastric analysis showed no free hydrochloric acid.

On admission a diagnosis of pernicious anemia with combined degenerative disease of the spinal cord was made. Cystometric study suggested early neurogenic vesical dysfunction. The patient was placed on a program of adequate parenteral liver therapy. There was steady improvement. Eleven weeks after the institution of therapy, the red-cell count was 5,880,000, and the hemoglobin 98 per cent. Neurologic improvement was dramatic, and the bladder difficulties markedly improved. The last cystometric readings were: the initial desire to void was at 220 cc., with 16 mm. pressure; the maximum voluntary pressure was 54 mm. at 475 cc.; there was no change in the residual urine.

This case is an illustration of early neurogenic vesical dysfunction in pernicious anemia. The clinical and cystometric improvement shows conclusively the efficacy of liver therapy in neurologic manifestations of the disease.

Case 2. An American male, aged 70, was admitted to the Carney Hospital on May 17, 1937, complaining of inability to void. There was a history of progressive loss of strength for 4 years. He was uncertain as to the date of onset of his bladder difficulty, but had had nocturia, hesitancy and a sensation of incompletely emptying his bladder for 1 year. His gait was stumbling in character. He experienced considerable gastric distress. The patient had always been well prior to his present illness, although at the age of 24 he had had some injection treatments for what he thought might have been syphilis. The past history and family history were otherwise irrelevant.

Physical examination revealed a pale, elderly man in no apparent distress. The hair was thin and gray. The tongue was glossy. The pupils were equal and reacted to light and distance. The heart and lungs were negative. There was a large, non-tender mass in the lower midabdomen, which was flat by percussion. The kidney regions were negative. The external genitals were negative. Digital examination of the rectum found the sphincter relaxed. The prostate was small, soft and benign. There was slight pitting edema of both lower extremities. The sensorium was clear. There was no cranial-nerve involvement. Sensory disturbances consisted of slightly diminished perception of heat and cold, and of slight touch and pinprick in the lower extremities. The vibratory sense was absent in the lower extremities. There was no motor involvement except weakness in the legs. The deep reflexes in the upper extremities were equal and active. The Hoffmann sign was not present. The knee jerks were hyperactive equally. The ankle jerks were normal. The Babinski was present. The Romberg was positive. The gait was not typical. The red-blood-cell count was 2,920,000, the white-blood-cell count 10,450, and the hemoglobin 50 per cent. On smear the red cells were normal in size and achromic; the platelets were normal; the polymorphonuclears numbered 44 per cent, lym-

phocytes 47 per cent, eosinophils 4 per cent and monocytes 5 per cent. The blood urea nitrogen was 33 mg. per cent. The blood Hinton and spinal-fluid Wassermann tests were negative. The urine was cloudy and alkaline with a specific gravity of 1.016; there was a trace of albumin but no sugar. The sediment contained a large amount of pus. Culture showed *Bacillus coli* and *Staphylococcus aureus*. A phenolsulfonphthalein 2-hour renal function test showed 10 per cent excretion the first hour and 14 per cent the second. Gastric analysis revealed no free hydrochloric acid. The hematocrit determination demonstrated an MCV of 122 μ^3. Cystoscopy revealed a classical picture of cord bladder, with evidences of marked infection. Cystometry showed a markedly atonic bladder with the first desire to void occurring after 520 cc. had been injected, with a resulting intravesical pressure of 12 mm. of mercury. The maximum voluntary pressure was 38 mm. at 760 cc.

Following admission, the patient was placed on inlying catheter drainage, the bladder was emptied by gradual decompression, and a closed system of irrigation was effected. He was given concentrated liver extract intramuscularly, and because of the low hemoglobin, ferrous sulfate was administered. Ammonium chloride and mandelic acid were given to combat urosepsis. On this program there was gradual clinical and laboratory improvement. The red cells reached 5,420,000, and the hematocrit reading fell to 88 μ^3. There was marked neurologic improvement. The gait was much better. The Romberg test became negative and the Babinski reflex disappeared. There was no improvement of the vibratory sensation. In other words, there was regression of some neurologic signs with progression of none. On July 28, 1937, the cystometric study disclosed marked improvement, although the bladder was still far from normal. The first desire to void was at 350 cc. with a pressure of 20 mm., and the maximum voluntary pressure was 64 mm. at 600 cc. The urethral catheter was removed 1 month later, after which the patient voided without difficulty in satisfactory amounts. The residual was as low as 120 cc. In spite of continuous liver therapy, however, urinary symptoms recurred, the residual urine mounted, and the patient finally developed a septic temperature with toxemia. A suprapubic cystostomy was done on October 7. The convalescence was uneventful. The patient was discharged on suprapubic drainage on November 29.

This patient on admission presented a problem in diagnosis. However, in view of the physical and neurological findings, the laboratory data, the negative serological tests and the cystometric readings, we decided that the case was one of advanced neurogenic vesical dysfunction due to pernicious anemia. The marked return to normal of the blood picture, the clinical progress and the cystometric improvement confirmed this diagnosis. In this case, however, cord damage of an irreversible nature had doubtlessly taken place, with the result that irrecoverable damage to the detrusor had developed. The important role of urosepsis as an additional deleterious factor is well demonstrated, since it precipitated the necessity for surgical drainage.

SUMMARY

The importance of early recognition of neurogenic vesical dysfunction in pernicious anemia and the necessity of prompt and adequate liver therapy in order to prevent irrecoverable cord and detrusor damage are emphasized.

Cystometry is shown to be an accurate diagnostic procedure in both preclinical and clinical vesical dysfunction of neurogenic origin and to be the most important qualitative index of recovery.

Two illustrative cases are recorded.

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FOREIGN BODIES IN MALE URETHRA

Report of an Unusual Case

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THE case of a man with multiple sclerosis who was recently treated at the Boston City Hospital for foreign bodies in his urethra is so unique that it should be reported.

CASE REPORT

A 34-year-old man was admitted to the hospital complaining of "three pairs of tweezers" in his urethra. He

Figure 1. *This photograph shows the prongs of one pair of tissue forceps protruding through the glans penis on either side of midline just below the external meatus, and the sinus at the penoscrotal angle.*

stated that 2 years previously, when he and "a girl friend were just playing around," the first pair of forceps was pushed into the urethra, with the closed end foremost. A second forceps, he said, was inserted some time later in an attempt to extract the first, and about 6 months before his coming to the hospital a third forceps was inserted in an effort to remove the other two. He offered no explanation as to why each forceps had been inserted with the closed end first, even when asked how he had expected to grasp the other forceps in that manner. There had been only slight pain and no urinary difficulty previous to admission.

About 6 years before, the patient noticed that his right leg gave way when he was walking. Five years previously he awoke one morning with numbness of both legs, and was unable to move them. A short time later he began to have weakness in the left leg to as great a degree as in the right. It increased so much that he had to give up his job as a truck driver. On entry he was unsteady when standing alone, and was unable to walk unassisted.

Physical examination showed a somewhat emaciated, white male, with marked scoliosis and kyphosis, who was unable to walk without assistance. The glans penis was penetrated on both sides of the frenum just below the external meatus by the prongs of a pair of tissue forceps, which extended about 1 cm. beyond the under surface of the glans. The forceps was about 10 cm. long, and was easily palpable in the urethra with the closed end at the penoscrotal angle. At that angle there was a urethral fistula and the prongs of another forceps could be felt. About 1 cm. deeper in the urethra the prongs of a third forceps were felt. The closed ends of the second and third

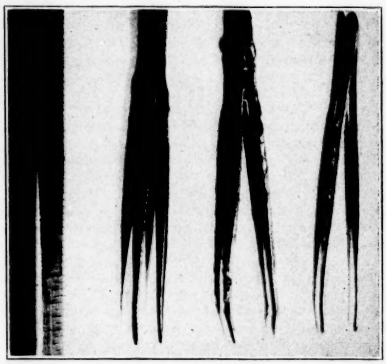

Figure 2. *The three pairs of forceps removed from the urethra. The pair showing the most erosion was farthest in the urethra, and apparently was the first to be introduced.*

pairs were felt in the perineal portion of the urethra.

The patient was well oriented and co-operative, and expressed no abnormal ideas, but seemed distinctly irrational. Examination of the cranial nerves was negative. There was a marked weakness of both legs and to a lesser extent of the right hand. The gait was unsteady. There was no definite level of sensory disturbance. The vibratory sense in the ankles was lost. There was hyperesthesia of the legs and trunk to pinprick. There were a positive Babinski and exaggerated ankle clonus and ankle and knee jerks. The reflexes of the right arm were more active than those of the left. The right foot and ankle were cyanotic, and colder than the left. On laboratory examination the spinal fluid and blood were normal.

A diagnosis was made of multiple foreign bodies in the urethra and multiple sclerosis.

Operation was performed under spinal anesthesia. A perineal urethrotomy was made over the closed end of the

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deepest pair of forceps. With a Kelly hemostat each pair of forceps was grasped and removed through the perineal incision. A No. 20 Fr. urethral catheter was placed for continuous bladder drainage, and the perineal wound was closed, with drainage. The convalescence was prolonged because the patient was unco-operative and removed his catheter several times and also because there was a more or less septic condition of the urethra, due to the length of time the forceps had remained there.

SUMMARY

A case of foreign bodies (three pairs of tissue forceps) in the urethra of a man with multiple sclerosis is described. Following operative removal, the patient made a complete, though delayed, recovery from his urethral difficulties.

868 Beacon Street.

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 24211

PRESENTATION OF CASE

A sixty-seven-year-old, white, American man entered the hospital with the complaint of epigastric pain of eleven days' duration.

Seven years before entry he was hospitalized for one week for "intestinal stoppage." Treatment consisted of turpentine stupes and enemas, and he was discharged well. He was well until six months before entry when he began to have epigastric distress and gas pains which were greatly relieved by food and soda. For the next four months he continued to have these symptoms, but they became less severe. About two months before entry he began to have indigestion which to him meant a dull nonradiating ache in the upper abdomen with gaseous eructations and loss of appetite. He also had increasing constipation. Eleven days before entry he was awakened from sleep at two o'clock in the morning by a persistent, sharp, moderately severe, nonradiating, epigastric pain accompanied by some nausea but no vomiting. He did not sleep any more that night, but the following morning was able to do his work driving a bus. The pain continued and two or three days later became more severe, forcing him to go to a hospital where he remained up to the time of entry here. The pain was not relieved by taking food. During the acute illness he had almost no appetite, and in spite of enemas, passed only a little gas by rectum and very little feces. He did not know whether he had lost weight. He had no jaundice, chills, colicky pain, hematemesis, melena or genitourinary symptoms. For some time he had been treated by his physician for angina pectoris and regularly took "white pills" under his tongue for relief of his attacks. He stated that the pain of his present illness in no way resembled his anginal pain. His past history was otherwise negative, and his family history was noncontributory.

Physical examination revealed a well-developed, fairly well-nourished man complaining of moderate abdominal distress. The heart was slightly enlarged to the left, but the chest was otherwise negative. The blood pressure was 130 systolic, 70 diastolic. The abdomen was moderately distended and tympanitic throughout except in the right lower quadrant where it was dull. There was generalized tenderness, most marked in the epigastrium. No masses were made out, and liver dullness was obliterated. Peristalsis was diminished but high-pitched in tone. Rectal examination was negative.

The temperature was 99.5°F., the pulse 75. The respirations were 20.

The blood showed a red-cell count of 4,800,000 with 75 per cent hemoglobin, and a white-cell count of 13,200 with 88 per cent polymorphonuclears. The nonprotein nitrogen of the blood was 27 mg. and the protein 5.9 gm. per cent. The van den Bergh was too low to read. The chlorides were equivalent to 107 cc. of N/10 sodium chloride. A flat x-ray plate of the abdomen showed an unusual central convexity of the right side of the diaphragm with a horizontal anterior costophrenic angle. The diaphragm moved well with respiration, and there was no evidence of fluid above it or air beneath it. The lung fields were essentially clear, and there was no evidence of varices in the esophagus. The splenic flexure of the colon was unusually high. When the patient was in the upright position, there was a single loop of slightly dilated small bowel in the center of the epigastrium which contained gas and fluid. The colon contained a small amount of barium and showed no evidence of dilatation. Films taken at the hospital where the patient had been before entry here showed an unusually high stomach and a large duodenal loop. A repeat flat film of the abdomen taken the day after entry showed no definite change except that the colon was filled with gas and appeared to be moderately dilated.

On the day following entry the patient experienced rather severe, persisting, epigastric pain which was more severe than any he had had previously and was not relieved by morphine. His abdomen was tense, distended and very tender, with maximum tenderness just above and lateral to the umbilicus. The white-blood-cell count was 18,200.

A laparotomy was performed on that day.

X-RAY INTERPRETATION

DR. AUBREY O. HAMPTON: These upright films of the abdomen were taken on the day of entry and the barium that you see here in the colon was administered before he came in. As the note states, there was no free air beneath the diaphragm and the diaphragm moved well with respiration although it did show this queer central convexity on the right side. We have seen a shadow like this on several occasions and each time we have become excited about it, but it has always turned out to be nothing but an anatomic variation. We gave

barium and ruled out varices in the esophagus. We could not examine the stomach satisfactorily at that time, but at the previous examination done outside the hospital the stomach, duodenum and colon were normal. The upright film shows this single loop of dilated, gas-and-fluid-filled small bowel in the center of the epigastrium. It is the only definite, abnormal finding we saw.

Differential Diagnosis

Dr. Franklin G. Balch, Jr.: In reviewing the history, we have a man of sixty-seven who was well until six months before he came into the hospital. The point that strikes us first is that at that time he had epigastric distress relieved by food and soda, which makes us wonder if he had a duodenal ulcer. The x-rays seem to rule that out. Also, if he had an ulcer with a subacute perforation just eleven days before entry he should have been sicker at the time of entry. If he had had a subdiaphragmatic accumulation of fluid he certainly ought to have shown evidence of it in the x-rays. His diaphragm should not have moved freely, and he should not have had normal respiration. Carcinoma of the stomach can also be ruled out on the x-ray findings.

How about the possibility of gall-bladder disease to explain his trouble? I believe that gall-bladder disease could account for the attack of epigastric pain six months before entry with symptoms relieved by food and soda. He was able to go back to work after his episode eleven days before entry, and that too is consistent with such a diagnosis. When he came into the hospital his symptoms were those of obstruction, with a distended abdomen and epigastric pain. I think we can rule out obstruction of the large bowel by the x-ray and by the fact that his pain was entirely epigastric. The symptoms were too intermittent in character for an acute obstruction caused by volvulus or intussusception. He has apparently had obstructive symptoms which have subsided and then recurred.

We have to think of appendicitis but I do not believe that it enters into this picture because he did not have paralytic ileus. He has had no previous operation to suggest the possibility of adhesions. Carcinoma of the small bowel must be considered. It is a rare disease, but it does give intermittent obstruction such as this patient has had. It may last a period of several months or even a year, but if it had been going for as long as six months I should expect the patient to have been more cachectic. He apparently was a fairly well-nourished man.

Some form of mechanical obstruction in the bowel must be thought of. I am probably a little biased in favor of the possibility of gallstone colic, as I have had occasion to look up some cases here recently. I found only 10 in the hospital records from 1898 to 1932. It occurs in the older age group and is characterized by intermittent symptoms. I believe that the attack six months previously might perfectly well have been a gall-bladder attack and that the episode eleven days before entry was perhaps when the stone ulcerated through into the bowel. It is customary with this type of disease that, as the spasm lets up, the patient may pass gas and fecal material until the stone obstructs again. The stones may or may not show by x-ray. There were 6 cases in this series in which an x-ray was taken; stones showed in 3 of these. The fact that nothing showed up in the x-ray does not necessarily mean that he did not have a foreign-body obstruction. I am therefore going to make a diagnosis of mechanical obstruction in the upper small bowel, probably from a gallstone.

Clinical Discussion

Dr. Arthur W. Allen: This man presented a very interesting diagnostic problem. He had been x-rayed in a hospital in a neighboring city, and the x-ray man had made a diagnosis of carcinoma of the pancreas on the basis that the stomach was pushed up by something; and the patient was sent in here with that diagnosis. We were a little suspicious, however, and did not agree with it. On entry the man was so well that we felt we could watch him for a while and study him a little more, but following the x-ray examination done in this institution he had a recurrent episode of acute abdominal discomfort. The history, so far as it is given, is quite accurate; but it does not really give much idea as to how ill he looked after he had had his second episode of pain. He was in shock and the abdomen was distended and very tender, particularly in the epigastrium, in the left upper quadrant and to the left of the midline. We decided that he had some form of intestinal obstruction. We cast about in our minds for various possibilities as to the diagnosis, and I am not clear now why we happened to make the correct one, because it was not so clear as it might sound. However, we operated on him with a preoperative diagnosis of a mesenteric thrombosis. Perhaps it was the extreme illness of the patient that made us feel that that was his trouble. We did find that almost the entire jejunum was gangrenous, but in a different way from what we usually see in mesenteric thrombosis; that is, it had intermingled spots of necrosis and of almost normal-looking bowel over a distance of about 3 or 4 ft. The mesentery of the bowel was tremendously

thickened, and there were a great many enlarged lymph nodes in it. The bowel was greatly dilated and did not have the clear-cut, frankly gangrenous appearance that we see with the usual thrombosis that occurs in the artery. We believed that it was a venous thrombosis, cause unknown. In retrospect, I think that this diagnosis more adequately explains the episode ten days previously. We had to resect the jejunum from just a few inches below the ligament of Treitz for 3 or 4 ft. and did an end-to-end anastomosis. Much to our surprise he completely recovered, after a stormy convalescence, and went home.

A PHYSICIAN: How often do you see a white count as low as that with mesenteric thrombosis?

DR. ALLEN: I knew someone would speak of that. In any thrombosis that occurs in the artery it is apt to be high (30,000 to 40,000). The count of 18,000 bothered us in making the preoperative diagnosis, but we believed it was not the kind of mesenteric thrombosis that we commonly see. We considered seriously the question of gallstone ileus and were hesitant about ruling it out. It would stand up perfectly well with the story as he gave it.

A PHYSICIAN: Are the x-ray findings characteristic of 4 ft. of gangrenous small intestine?

DR. HAMPTON: They are not characteristic of anything. A man as sick as he was from any other disease would probably show a little gas in his small bowel. I have no proof, but I think the routine case of mesenteric thrombosis shows very little.

PREOPERATIVE DIAGNOSIS

Mesenteric thrombosis.

DR. BALCH'S DIAGNOSIS

Gallstone ileus.

ANATOMICAL DIAGNOSES

Thrombosis of superior mesenteric vein.
Gangrene of jejunum.

PATHOLOGICAL DISCUSSION

DR. TRACY B. MALLORY: The term mesenteric thrombosis as used by clinicians covers three entirely separate types of vascular lesions in the mesentery. The commoner types of vascular occlusion are arterial; these may be divided into those caused by a local thrombosis developing on the basis of atherosclerotic plaques within the mesenteric artery or by an embolus breaking loose from the heart or aorta and swerving down the mesenteric artery. Probably embolus is the commonest etiologic agent. Then there is a third type where the occlusion is on the venous side, sometimes associated with septic phlebitis, other times apparently a bland thrombosis, which was the case here. This specimen showed complete occlusion of the entire venous system up to a point about 10 cm. from either margin of the resected gut, where the vessels became patent again. The arteries throughout the specimen were perfectly free of clots. The gut was gangrenous in part but not so completely as one would expect with a ten-day story of arterial occlusion.

A PHYSICIAN: Does a process such as this ever develop into portal thrombosis?

DR. MALLORY: There is always that possibility.

DR. ALLEN: You have no light to throw on the etiology of this condition?

DR. MALLORY: Not the slightest.

A PHYSICIAN: What was the significance of the previous six-month story?

DR. MALLORY: One wonders always whether a volvulus or intussusception could be the initiating factor by slowing circulation long enough to let the thrombotic process start; but I have never seen any evidence to prove that such is the case.

CASE 24212

PRESENTATION OF CASE

A twenty-eight-year-old, white, American electrical engineer entered the hospital for treatment of a recurring tumor of the chest wall.

Five and a half years before entry he noticed a lump on one of the ribs of the left side of his back. Part of the rib was removed by his surgeon following which the patient was discharged as well. Two years later he noticed enlargement of the stump of the resected rib and extension of the tumor to the adjacent rib. The remains of the stump and the adjacent rib were resected, and he was sent to a Boston hospital for follow-up treatment. Eight months later the tumor recurred in the operative scar and was again removed surgically. It recurred again twenty-seven months later on the rib stump, and again was resected. Seven months later, one week before entry, an x-ray was taken at another hospital which showed a "questionable area at the base of the right lung." At the time of entry he had no symptoms, and he had always been in excellent health. He had never been exposed to tuberculosis and had never had heart or lung trouble of any kind. He had not lost weight or strength. His family history was noncontributory.

Physical examination revealed a well-developed and nourished man apparently in excellent health. There were healed surgical incisions on the posterolateral aspect of the left chest and questionable slight muscular atrophy in the right subclavicular region. The lungs showed a few rales at the right

base but were otherwise negative. The heart and abdomen were negative, and the blood pressure was 130 systolic, 60 diastolic.

The temperature was 98.6°F., the pulse 88. The respirations were 20.

The urine examination was negative. The blood showed a red-cell count of 4,460,000 with 80 per cent hemoglobin, and a white-cell count of 6300 with 67 per cent polymorphonuclears, 27 per cent lymphocytes and 6 per cent monocytes.

An x-ray of the chest showed a rounded mass measuring about 4 cm. in diameter which was continuous with the right posterior costophrenic angle at about the posterior axillary line. The costophrenic angle was obliterated, apparently by a small quantity of fluid. The remainder of the right lung was clear. There was a small, indefinite, rounded nodule measuring less than 1 cm. in diameter overlying the anterior end of the left fourth rib. The left lung was clear. There were no mediastinal masses, and the rib resected at the previous operations had not regenerated.

An operation was done on the eighth day.

X-Ray Interpretation

Dr. George W. Holmes: It is interesting that the mass appears on the opposite side from where his previous trouble had been. The mass itself is obviously in the lower portion of the right lower lobe.

Dr. Richard H. Wallace: Is there any evidence of calcification?

Dr. Holmes: No. It has a very indefinite margin, and there is a peculiar band above it. It looks more like an infiltrating tumor than a sharply localized, encapsulated lesion.

Dr. Wallace: Can you demonstrate the nodule described at the end of the previously resected rib?

Dr. Holmes: No, I think they must have operated again. The end of the rib is perfectly smooth.

Dr. Wallace: Is there one rib entirely missing?

Dr. Holmes: Yes.

There is no evidence of anything on the left side, and no pleural change. On the right side you have a poorly defined lesion with some fluid in the pleural space. It could be due to a malignant tumor or to an inflammatory process. I do not believe that it could be due to benign tumor.

Differential Diagnosis

Dr. Wallace: Our problem is one of deciding the nature of the tumor arising in a rib and recurring locally four times over a period of five and a half years, in a young, healthy individual. I suppose we should mention gumma in any tumor of the chest wall, but as there is no evidence of anything in the history or physical findings suggestive of syphilis I believe we can rule that out. I do not believe that any tumor that has recurred four times after surgical removal without a breaking down of the skin or without sinus formation can be tuberculous. Lymphosarcoma does occur in ribs, but lymphosarcoma of five years' duration would not leave so healthy an individual. Myeloma more commonly occurs in the older age group — the fourth or fifth decade; it is almost always a multiple tumor, and after five years the disease should be generally apparent. Giant-cell tumor of the rib is extremely rare. There is one case from this hospital in the Warren Museum, but I do not know of any other from this city. The few cases in the literature occurred at the end of the rib and presumably this had its origin in the midportion. Ewing's tumor occurs at this age. It does occur in ribs, but there is usually a history of trauma and almost always a story of pain, temperature and elevated white count. It is more likely to be confused with osteomyelitis, and often, even at operation, the differentiation of a Ewing's tumor and osteomyelitis is extremely difficult.

A tumor arising in the rib and recurring four times after local excision in a healthy young individual is most likely a chondroma or an osteochondroma. This type of tumor with time, and possibly with the trauma of multiple operations, is very likely to become malignant. It is the type of tumor that is likely to metastasize to the lung, and not infrequently the early metastases are solitary. I suppose this evidence of a lesion in the lung may have nothing to do with the original tumor, but I believe that this is probably a chondroma or an osteochondroma which has become malignant and has metastasized to the lung.

Clinical Discussion

Dr. Channing C. Simmons: I sent this young man into the hospital. The first four operations were done elsewhere. I did the last one, removing the entire rib. That is why Dr. Holmes cannot see the rib. The patient had routine x-ray films of the chest every three months, and the lesion in the lung was found. On reviewing the plate taken three months earlier one can see the same area very indistinctly, but it was not recognized at the time.

Dr. Edward D. Churchill: This is another tragic story of a chondrosarcoma of the rib originally treated by inadequate excision. These tumors are often spoken of as "benign." I consider them to be among the most treacherous tumors of the chest wall, and from our experience here, they must be treated as malignant tumors and the entire

rib in which they are situated must be removed at the first operation. The mistake is often made, or has been made in the past, that the surgeon tries to remove the tumor without opening the pleural cavity and with a margin of only 2 or 3 cm. of the rib. We know that this is not adequate surgery, and the surgical results for this type of tumor, as reported in the literature, are notoriously bad. In this case we were presented with the diagnosis from the previous examinations, and the only question was whether it was worthwhile removing a metastasis. In this particular type of tumor I think it is justifiable to try to keep abreast with the metastases and the recurrences once they have started. So we did remove the lower lobe of the lung, a piece of the diaphragm that came in contact with the metastasis, and a section of the parietal pleura. I think the tumor will recur, but at least the operation has given him another span of a year or a few years until the recurrence takes place. I spoke of it as a tragic case, but the man had very little reaction to operation and was discharged from the hospital perfectly well.

A Physician: Was there any sign of local recurrence?

Dr. Churchill: We did not explore that side.

Dr. Simmons: I agree with Dr. Churchill's remarks but should not want to limit them to chondromas of the rib, for I believe they apply to similar tumors of the other bones. I recall a case of a man of thirty-six, who in 1913 presented a chondroma of a metatarsal. A portion of the bone was removed, and the tumor reported to be nonmalignant. Thirteen years later he returned with a recurrence, and the foot was amputated. He died a year later with lung metastases. In another case with multiple exostoses, Dr. Hugh Cabot performed a shoulder-joint amputation for sarcoma in 1902. In 1918 the femur was amputated for chondrosarcoma. Five years later the other femur was amputated, and he died three years later of acute appendicitis. This is not unusual in osteochondromas. The same thing happens in the osteochondromas of the pelvis, which are usually inoperable.

Preoperative Diagnosis

Metastatic sarcoma of rib.

Dr. Wallace's Diagnosis

Osteochondrosarcoma with metastasis to lung.

Anatomical Diagnosis

Osteogenic sarcoma, chondroblastic type.

Pathological Discussion

Dr. Tracy B. Mallory: It is difficult to know where to pin the responsibility for the improper treatment that these patients receive in most instances. Unquestionably both pathologists and surgeons are to blame, but I think that the trouble primarily is the failure of the pathologists and surgeons to understand each other. These chondromas of the ribs appear, from the histological point of view, as very benign tumors. It is almost impossible for the histologists looking at sections to imagine that they can be malignant and can metastasize. As a matter of fact, the majority do not metastasize in this initial stage of the disease. They have, however, an extreme tendency to implantation. It seems very probable that a single tumor cell implanted in a wound will give a recurrence, and I do not know of any other tumor in which implantation occurs with such frequency and regularity. Eventually, in the course of successive recurrences, frank malignancy may develop. In this case, inasmuch as the tumor found on the last entry was in the lung on the opposite side from where the original rib had been removed, there can be no question that we are dealing with a metastasis. The sections of the mass show a frankly malignant tumor, in part spindle-celled, in a few places showing a small amount of osteoid formation; we can call it osteogenic sarcoma in its present form.

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ATTEND THE ANNUAL MEETING!

The advance program of the annual meeting of the Massachusetts Medical Society has been sent to the fellows; the amended program was published in the *Journal* of last week. This document, the culmination of months of effort, warrants careful study as it offers to members a well-considered selection of entertainment, as well as a résumé of much that is of importance in the progress of modern medicine.

Upon arrival at the Hotel Bradford, fellows will find adequate facilities for free parking. (Be sure to retrieve the green-cross sticker from your advance program and put it on your automobile windshield!)

The scientific exhibits, located on the balcony of the Ballroom, offer sixteen different demonstrations in the various fields of surgery, medicine, pathology, public health and radiology.

You are strongly urged to attend and examine the commercial exhibits. The annual meeting is an expensive affair. Fortunately for the Society, the cost does not fall entirely upon its treasury; if it did, the meetings in their present form would be a luxury it could ill afford. The various manufacturers of drugs, medicines and equipment and the purveyors of services pertaining to the medical profession have found it worth while, in certain instances, to present their wares in the form of exhibits. These, in many cases, are extremely interesting, featuring displays of the newest articles, as well as of time-tested products. It is well worth the members' time to examine each and every one. Most of our exhibitors belong to the Medical Exhibitors Association. This organization keeps statistical records of the hundreds of medical meetings that are held throughout the country each year, and on the result of its analyses is based the decision as to which meetings its members should attend. A good rating with their association is desirable, and can be obtained if fellows will register at the various booths. Our standing has not always been of the best. Possibly our New England attitude of indifference has kept us from showing more interest in these displays. We believe that a visit to each of the commercial booths will not only repay the physician but be a great aid toward insuring prosperous meetings in the future.

The combined clinical meeting proved to be a great success at its initial appearance in 1937. It should command even greater attention this year for it not only offers subjects of practical and general interest to all branches of the profession in one continuous meeting but presents papers or clinics by members of the staffs of twelve Boston hospitals—an increase, by two, over last year. Study of the past programs of other medical societies discloses the fact that this type of meeting is gaining increasing popularity throughout the country. In our own society, the members must soon express their opinion, for the guidance of the Committee of Arrangements, as to the role of

the combined clinical meeting in the annual sessions. Shall it be enlarged in scope to extend through two days, thereby cutting down upon the length of the programs of the various section meetings? Or shall it be rearranged to absorb the section meetings — the latter to be run in tandem with short periods for executive sessions and the election of officers? It is hoped that these possibilities, with perhaps other suggestions, will be considered and discussed in the coming section meetings.

In the matter of guest speakers, the Society is indeed fortunate. Dr. David Riesman, of Philadelphia, emeritus professor of clinical medicine and professor of the history of medicine at the University of Pennsylvania School of Medicine, will give the Shattuck Lecture. His subject is "America's Contribution to Nosography." On the same evening, Surgeon General Thomas Parran, of Washington, District of Columbia, will talk on the work and aims of the United States Public Health Service. For the annual dinner, President Frothingham has been able to secure Mr. Norman MacDonald, executive director of the Massachusetts Federation of Taxpayers' Associations, who will take as his subject, "Tax Problems in Massachusetts: the Obligation of Citizens, Professional and Otherwise, to Do Something about It." We know of no one better qualified to present this interesting and important problem. All who went to the Springfield meeting two years ago will remember with pleasure Dr. Allen S. Rice, visiting surgeon at the Springfield Hospital. He will present the annual oration — a discourse on "The Passing of Surgical Yeomen."

The Ladies' Committee has completed its interesting program for the wives of members. An original feature will be a private dinner party given on the first evening at the Hofbrau House, where our Teutonic hosts will entertain their guests with German songs and dances. Those who have not already done so are urged to send in their acceptances immediately, for the number of tickets is limited.

No one should attend the annual meeting without making at least one visit to the exhibition of the Boston Physicians' Art Society. It will be stimulating to discover what remarkable work one's busy contemporaries are doing with the spare time which the rest of us find so difficult to turn into creative channels.

Special attention is again called to the golf tournament to be held on Wednesday afternoon, June 1, at the Commonwealth Country Club, 91 Algonquin Road, Newton Centre. Members both with and without club or state handicaps will have their respective divisions and will find an added attraction in the numerous prizes in each group. The Massachusetts Medical Society Golf Challenge Cup, a ten-inch, sterling-silver, Paul Revere bowl, will be awarded for the low net score. Each player should have every inducement to attempt to win this bowl three different years, for this is necessary to make it a permanent part of one's display of trophies. It is hoped that the golf tournament will become an increasingly popular fixture in our spring sessions. Send in your entry now and bring your clubs with you!

Students of the progress of our society, the oldest in continuous operation in the United States, will observe that, year by year, its annual gatherings offer more and more to its fellows. There is every reason to believe that the coming annual meeting will surpass its predecessors in the fields of interest, instruction and entertainment. One must keep in mind, however, that the success of any such venture depends not alone upon the physical equipment but in even larger measure upon the enthusiasm of the members themselves. This enthusiasm is exemplified by a large attendance.

NEW BUILDING FOR THE ARMY MEDICAL LIBRARY AND MUSEUM

THE affairs of the Army Medical Library, which has recently celebrated its centenary, having been established by the Surgeon General of the Army in 1836, are of interest to all physicians. The largest medical library in the world, with its material, except for the rarest books and manuscripts, available to every practicing physician, this library is regarded everywhere throughout the

world as a model and its catalogue, first published in 1879 and issued ever since that date, has been described as "America's greatest gift to medicine." Rare must be the physician in this country who pretends in any way to keep abreast of medical thought, who, in some way, does not come in contact with this great institution. The Army Medical Museum, which is closely associated with the library, preserves for the benefit of physicians the largest pathological collection in America. Seven registries of pathology have been established at the museum by national scientific societies since the World War. The Army Medical Library and Museum, therefore, offer a unique opportunity to investigators to study the entire literature on a medical subject and then to view the pathological specimens, gross and microscopic, of the subject under consideration.

It will be a great pleasure for physicians to learn that the President of the United States has approved the project of constructing a suitable building to house these priceless collections and that a bill is before Congress proposing the construction of such a building in Washington. For the first time, therefore, a project which has long been in the minds of many of our leading physicians now has a definite plan. This proposal should receive the hearty endorsement of the medical profession and a letter to the congressional representative of any physician, urging the passage of this bill during the present session of Congress, if written promptly, would serve to emphasize our desire to see the Army Medical Library and Museum properly housed.

MASSACHUSETTS MEDICAL SOCIETY

SUGGESTED REVISION OF BY-LAWS

The majority of the committee appointed by the Council at its meeting on February 2, 1938, to consider suitable changes in the by-laws designed to clarify the method by which delegates to the annual meeting of the American Medical Association shall be chosen wishes to make it clear that nothing in its recommended amendment of Chapter IV, Section 7, as printed in the notice recently mailed to all fellows of the Society, precludes nominations from the floor.

HALBERT G. STETSON, *Chairman.*

SECTION OF OBSTETRICS AND GYNECOLOGY

M. FLETCHER EADES, M.D., *Secretary*
19 Bay State Road
Boston

CASE HISTORY NO. 73. SEPARATION OF THE PLACENTA

A twenty-two-year-old primipara, due August 23, 1931, entered the hospital August 10, with a history of having had intermittent uterine contractions throughout the day of entry, with the onset of vaginal bleeding one hour prior to entry. At this time the uterine pain became more severe and continuous. The patient was unable to estimate the amount of blood she had lost.

There was no family history recorded, and the patient's past history was not remarkable. Catamenia began at fourteen, had a twenty-eight-day cycle, were regular and lasted four to five days; there was no pain. Her last period was November 16, 1930.

Her antepartum course had been uneventful. She had been followed four and a half months in the prenatal clinic, and at no time had shown hypertension or albuminuria; for the three or four days prior to entry she had felt "nervous." The last visit to the clinic was six days prior to entry.

On physical examination at entry, the patient was a well-developed and nourished woman, crying with pain and apparently very uncomfortable. The skin and mucous membranes were very pale. The blood pressure was 96 systolic, 90 diastolic, with a pulse of 120, which was easily compressible and difficult to obtain. Abdominal examination revealed an eight-months-pregnant uterus, which was tense and rigid. The fetal heart was not heard. A perineal pad worn on admission was soaked with bright-red blood. Vaginal examination revealed the cervix to be partially taken up, the os one finger dilated, and the head in the midpelvis. Thirty cubic centimeters of urine obtained on admission showed a trace of albumin and a few white blood cells.

One-half hour after entry the cervix and vagina were tightly packed with 9 yd. of gauze, following which a Spanish windlass was applied. One minim of pituitary extract was given following these procedures. Intravenous fluids were also started, and

A series of selected case histories by members of the section will be published weekly.

Comments and questions by subscribers are solicited and will be discussed by members of the section.

soon thereafter she began to bleed through the vaginal pack. Two transfusions of 500 cc. of citrated blood were given, because of a rapid, poor pulse of 132, air hunger, thirst and other evidences of blood loss, although the blood pressure was 150 systolic, 130 diastolic. Vaginal bleeding stopped after the second transfusion. Pituitary extract was continued in increasing doses up to 4 min. every half hour. Restlessness was controlled by two doses of morphine (1/4 and 1/6 gr.). The patient went into labor about three hours later and gradually pushed out the vaginal pack. Eleven and a half hours after entry, under gas-oxygen anesthesia, she was delivered normally of a dead, but not macerated, full-term, male infant. The blood loss at delivery was 325 cc.

At delivery only 30 cc. of urine was obtained, which also showed a trace of albumin. Because of the oliguria the patient was put on constant drainage so as to follow the urinary output more accurately. Immediately after delivery the patient was given 150 gm. of glucose in 500 cc. of saline, in an attempt to stimulate urinary output.

Following delivery the patient's condition was improved. There is no record of the blood pressure immediately after delivery, but at the end of the day it was 100 systolic, 76 diastolic. During the puerperium the urinary output increased, the amount of albumin decreased, and the blood pressure gradually fell to normal, being 110 systolic, 86 diastolic, at discharge.

Blood studies on August 12 showed a nonprotein nitrogen of 50 mg., a urea nitrogen of 22.5 mg. and a uric acid of 7.0 mg. per cent. These values all decreased during the puerperium. On August 15 the nonprotein nitrogen was 32 mg. and the uric acid 5.1 mg. per cent, and on August 22 they were 48 mg. and 5.3 mg. respectively. The postpartum course was uneventful, and she was discharged well on the fourteenth day.

The placenta weighed 320 gm. There was a 2-cm. area of old hemorrhage into the placenta with resultant necrosis of the surrounding tissue, including the associated decidua, over an area 9 by 4 cm. The old necrosis of the decidua had resulted in a massive, recent hemorrhage covering half the maternal surface of the placenta to a depth of 1 to 4 cm. The latter was the pathologic lesion associated with the vaginal bleeding on entrance, but the older hemorrhage causing the infarction, which in turn was responsible for the recent hemorrhage, occurred some days prior to the onset of the patient's acute illness.

Comment. This is a typical history of toxic separation of a normally situated placenta and shows how quickly separation can take place. She visited the clinic six days prior to entry and was normal in all respects. The success of the conservative treatment for this condition is again evidenced. When the baby is dead and when the patient is in shock it is almost never advisable to do anything but treat the case in this conservative manner. The quick recovery to normal of blood constituents, urine and blood pressure points to a complete recovery. Time alone, however, will prove whether lasting kidney damage exists.

INFANTILE PARALYSIS

The victims of poliomyelitis, more commonly called infantile paralysis, are a common sight to us all.

Not many years ago the very mention of the name, infantile paralysis, struck terror to the hearts of parents. This fear that their children may catch the disease still exists, but parents today need not have the dread that their children, so afflicted, will become hopeless cripples, a constant care or a great expense to themselves or the community.

If the disease is recognized early and if prompt and effective treatment be given, none of the terrible deformities we have been accustomed to see need occur. It is only by the early prevention of beginning deformities that this may be brought about.

Infantile paralysis is caused by an infection which damages that part of the spinal cord containing the nerve cells which control muscles in all parts of the body and which make them contract and thus produce movement. This damage may weaken or completely paralyze the muscles affected.

The disease is most common in children under twelve; but persons of all ages may be affected. The majority of cases occur in late summer or early fall, generally from August to November; but cases are reported throughout the year.

The symptoms at the onset vary a great deal. At the beginning the child perhaps may not be so active or want to play with other children. He may complain of a sore throat, a mild digestive upset, or pain in the abdomen, legs or arms. He is very sure to have a slight rise in temperature and to complain of headache, and will be found unwilling to bend forward to put his head between his knees, on account of stiffness of the neck and back. It is most important for parents whose children show any of these symptoms, especially stiffness of the neck or back, to consult their family physician at once. If he suspects infantile paralysis, the Massachusetts Department of Public Health will always send a doctor to verify the diagnosis.

The paralysis or weakness takes place generally in from twenty-four to forty-eight hours after the first symptoms are noticed. At this time, or as early as the first symptoms are seen, pain of varying severity is usually present in the arms or legs and sometimes in both.

You have seen a great deal in the papers about the use of serum in the treatment of infantile paralysis to lessen or prevent the paralysis. The use of serum was based on experimental evidence that serum of patients who had recovered from the disease, called immune serum, would destroy the germ in other patients. While a few years ago we were very hopeful that this procedure might be of great help in the treatment, we have, I am sorry to say, no proof that it is of any benefit.

A "Green Lights to Health" broadcast given by Dr. Arthur T. Legg on Wednesday, May 11, and sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

The cause of death in this disease is due to paralysis of the muscles of respiration. Many lives have been saved, however, in the last few years by the use of respirators. This is a machine devised to keep up artificial breathing indefinitely. Some patients have been kept alive for months by the use of this machine, and then gradually they are able to breathe properly without it.

The treatment after the acute stage is of extreme importance and has two objects; first, to prevent the development of the deformities which are liable to occur; and secondly, to bring back power to the paralyzed or weakened muscles. Most of the deformities may be prevented if the patients come under treatment immediately after the onset. This means the application of light splints or plasters to hold the limbs in their normal positions to prevent the contraction of normal muscles when unopposed by the weakened ones.

The bringing back of power to muscles weakened by this disease is a long and tedious process. In the case of certain muscles, where the nerve centers have been completely destroyed, no power can ever be regained. A great deal of improvement can be made, however, in weakened muscles where the nerve supply is only partially destroyed. By prolonged treatment many muscles make a complete recovery of their powers to function.

An important aid to muscle training, which is usually given on an examination table, is what is called underwater treatment, or treatment in a tank or pool. Underwater treatment is a very pleasant way of carrying out the prescribed muscle exercises. The buoyancy of the water allows the patients to carry out movements more easily than on a table without the aid of water. In this treatment very carefully supervised exercises must be given, and it must be borne in mind that it does not consist merely of putting the patient in the water simply to swim and splash around. The patients must be carefully watched so that they will not overuse the stronger muscles and increase any deformity already present.

Parents should see to it that in the early stages their children receive proper attention and are not neglected until deformity occurs. It is much easier to prevent an early deformity than to correct it later. We see many patients with terrible deformities, the legs drawn up to the body, with bad curves of the spine, and some even crawling about on all fours, due really to neglect, the parents believing that nothing can be done for these pitiable children. Patients paralyzed for many years can be greatly benefited by proper treatment. The idea that nothing can be done for cripples of long standing is entirely wrong.

As the treatment for this disease is such a slow one, parents are apt to become discouraged. They will be advised to do this or that, and will receive pamphlets from charlatans promising cures. There is no quick cure, and no honest physician can or will promise one.

Based on the observation of over 6200 cases of infantile paralysis, it can be said: (1) between 35 and 40 per cent of all cases become normal; (2) deformities can and should be prevented by proper treatment; (3) practically every case can be made to walk, although some will require braces and crutches; and (4) with proper treatment and suitable vocational training, no victim of infantile paralysis should become a public charge.

Q. How is this disease contracted?

A. The disease is caused by a kind of germ which is called a filterable virus. This is apparently spread by ordinary contact, probably in much the same manner as the virus of measles. Only a very small minority of those who are exposed to the virus develop symptoms characteristic of the disease. Whether or not paralysis develops may depend upon the inherent resistance of the individual to the virus. But the nature of these factors of resistance is yet unknown.

Q. How much permanent paralysis will my child have?

A. About 50 per cent of patients who develop the characteristic early symptoms do not develop paralysis at all, and about 50 per cent of those who develop paralysis recover entirely. None of the symptoms in the early stage of the disease make possible a prediction as to the amount of permanent paralysis. This depends on the amount and degree of nerve-cell impairment in the acute stage of the disease.

Q. After the disease has started, is there anything to be done that can prevent later paralysis?

A. That is what we are trying to find out by research: we are hoping to discover some means of stopping the action of the virus before it has injured the nerve cells.

Q. How can deformities be prevented?

A. By early treatment of the affected muscles. This is accomplished by the application of light splints or plasters to the affected parts to keep them in their normal positions, followed later — when sensitiveness has subsided — by muscle re-education.

Q. When a child's leg muscles are affected, why not let him run around for his exercises?

A. Because by doing this he will tire the already weakened muscles and strengthen the normal ones, thus causing deformities.

Q. Why do you operate on these cases?

A. To correct existing deformities, to change unstable joints into stable ones, and to transplant strong tendons or muscles to take up the work of the paralyzed or weakened ones in order to give the patient a better balance of muscle power.

NEW HAMPSHIRE MEDICAL SOCIETY

HISTORICAL

The records of the New Hampshire Medical Society, dealing with each annual meeting, contain much that is of interest to the student of New Hampshire medicine. In 1827, for instance, we are told that Drs. Thomas Chadbourne and Josiah Crosby resigned because the Society did not enforce the regulation relating to consultation with irregular practitioners. After listening to a report on the subject by Dr. Oliver, those present refused to accept the resignations, because the petition contained unproved charges against the Society and certain particular members. The report contains a remarkably able and cogent argument against leaving an organization to reform alleged irregularities in it.

At this same meeting a dissertation on fractures, presented by Dr. Luke Howe, was nearly completed when the landlord appeared and notified the Society to find accommodations elsewhere. It was adjourned to the courthouse. This summary conduct on the part of the host is thought to have been due, though the record is silent on this point, to the uncompromising attitude of the Society on the use of alcohol.

BOARD OF REGISTRATION IN MEDICINE

A special meeting of the New Hampshire Board of Registration in Medicine, for the licensing of candidates

by examination and by reciprocity, will be held at the State House, Concord, at 10 a. m. on June 15 and 16. Candidates should apply to the secretary, Dr. Fred E. Clow, Brown House, Wolfeboro.

SOCIETY MEETINGS

Dr. Dwight O'Hara, assistant dean of Tufts College Medical School, was the guest speaker at the Dover Medical Society on May 5. His subject was "Scarlet Fever and Streptococci."

A meeting of the Strafford County Medical Society was held at Rochester on April 27. Drs. Roscoe G. Blanchard, Louis W. Flanders, John H. Bates and Forrest L. Keay, active members of many years' standing, were made honorary members of the society. Dr. Andrew J. Oberlander, Durham, University of New Hampshire medical director, was elected to membership. Dr. Samuel F. Marshall, of Boston, read a paper entitled "The Acute Abdomen."

A combined session of the Hillsboro County Medical Society and the New Hampshire Surgical Club in its forty-first annual convention was held at Nashua on April 26. Operative clinics were conducted by Drs. Halsey B. Loder, George Smith, Gordon M. Morrison and Frank H. Baehr. Drs. Ezra Jones, Harold G. Lee and George Smith participated in a symposium on "Low-Back Pain," after the business meeting at the Nashua Country Club.

Hon. Frank J. Sulloway and Drs. Sven Gundersen and E. L. Levine took part in the program at the recent annual meeting of the Rockingham County Medical Society at Portsmouth. Dr. Ralph Barker presided at the sessions. Dr. James Sanders illustrated his talk on "Traumatic Injuries of the Extremities" with moving pictures.

A meeting of the Belknap County Medical Society was held at the New Hampton School on April 5. Dr. M. Alice Normandin presided and the guest speaker, Dr. Halsey B. Loder, of Boston, read a paper entitled "Emergency Treatment of Conditions That Arise in General Practice."

DEATHS

BADGER — Melvin P. Badger, M.D., of Manchester, died Saturday, April 23, at the age of fifty-one. During the World War he served for two years in France as a captain in the Medical Corps. He was prominent in the veterans' organizations of Manchester and a member of the medical staff of the Notre Dame Hospital.

He is survived by a son, Melvin E. Badger, of Manchester, and two sisters, Mrs. Martha A. Smith and Mrs. Libbie M. Cummings, both of Boston.

DRAKE — Charles B. Drake, M.D., died from pneumonia at his home in West Lebanon on April 2. He was born in St. Johnsbury, Vermont, on August 19, 1848, to Spencer and Abigail (Keith) Drake. For fifty years he had been in active practice in West Lebanon and vicinity, retiring several years ago because of ill-health.

He had served on the Board of Education and the State Board of Health and represented the town of Lebanon in the New Hampshire General Court for more than six terms. He had also been school physician in West Lebanon. In 1933 he was honored by the New Hampshire Medical Society for his fifty years of active practice.

PERSONALS

Dr. Benjamin W. Baker, superintendent of the Laconia State School, was a delegate to the meeting of the American Association on Mental Deficiency at Richmond, Virginia, the last week of April. Dr. Baker led a discussion of the relation of mental deficiency to medicine and presided over a session of the convention. He is a member of the Public Relations Committee and of the Nominating Committee.

Certificates of the American Board of Internal Medicine have been granted to Drs. Fred E. Clow, of Wolfeboro, and Robert B. Kerr, of Manchester.

Dr. Frank S. Lovering, Moultonboro, who was ill for several weeks, has resumed practice.

Dr. W. J. Paul Dye has returned from a recent vacation in West Virginia.

Dr. Kenneth E. Dore, formerly of New Hampshire, has opened an office for the practice of medicine at Fryeburg, Maine.

NOTE

Mrs. Harry Almond, of Rochester, was elected president of the Women's Auxiliary to the Strafford County Medical Society. At its recent meeting Dr. L. W. Flanders was the guest speaker. Other officers elected were: Mrs. Harold Adams, of Somersworth, vice-president; Mrs. Louis Collin, of Dover, secretary; Mrs. Joseph MacLaughlin, of Farmington, treasurer; and Mrs. J. J. Morin, of Rochester, auditor. Mrs. J. J. Topham, president of the state organization, was a guest.

MISCELLANY

CONNECTICUT NEWS

Mortality in Connecticut for the Period, 1933-1937

The year 1937 established a record low death rate of 9.9 per 1000 population of Connecticut residents dying within the borders of the State. Records were made during the five-year period by an infant mortality rate of 40.5 per 1000 live births; by a rate for all forms of tuberculosis of 36.8 per 100,000; by one of 1.6 per 100,000 for diarrhea under two years of age; and by a maternal mortality rate of 2.9 per 1000 living births.

Clinics for Crippled Children

Diagnostic clinics for crippled children have been started at each of the five centers in the State. Eighty-four patients were examined at the five clinics, half of them being nine years of age or under. Sixty-eight of the 84 were found to be eligible for care by the Division of Crippled Children, State Department of Health.

Negro Health Problems in Hartford

By increasing the Board of Health budget from $97,360 to $131,040 for the fiscal year beginning April 1, 1937, and by the addition of state funds it has been possible to reorganize the activities of the Board of Health and give special consideration to negro health problems. The average length of life of Hartford's white residents is approximately sixteen years longer than that of the negro residents. The 1937 white death rate was 9.77 per 100,000, while that of Negroes was 17.41. The Negroes do not take advantage of the health facilities now available; many are transients,

moving frequently. Tuberculosis is their major health hazard. While the white tuberculosis death rate in Hartford has been declining, that of Negroes has remained as high as it was twenty years ago. Syphilis is a leading cause of illness and death and is one of the major causes of heart disease. The heart-disease death rate of Negroes in Hartford during 1937 was almost double that of the white population. The infant mortality rate in Negroes was over two and a half times that of the white population.

Addition to Undercliff Sanatorium

Plans have been made public for a new $600,000 infirmary, school and administration building of brick and concrete for Undercliff Tuberculosis Sanatorium at Meriden. The new structure will provide a 200-bed infirmary with expansion room on porches, modern facilities for children from three months to eighteen years old and equipment which will make it one of the finest in the country. The building has been designed to conform with the modern needs of tuberculosis sanatoriums.

Hartford County Medical Association

Dr. James R. Miller has been elected president of the Hartford County Medical Association succeeding Dr. Maurice T. Root. Dr. Henry Costello, Hartford's medical examiner, has been elected vice-president, Dr. Frank T. Oberg re-elected secretary-treasurer and Dr. Root made a member of the Board of Censors. Dr. Benjamin Robbins has been elected to membership on the Committee on Public Policy and Legislation. New state delegates, who are also members of the Board of Directors, are Dr. James M. Lynch, Dr. Peter J. Steincrohn, Dr. Edwin C. Higgins, Dr. Aaron P. Pratt and Dr. Charles T. Schechtman.

Dr. Root's address as retiring president was entitled "An Everyday Approach to Some Pressing Medical Problems." The guest speaker, Dr. Charles H. Goodrich, president of the Medical Society of the State of New York, discussed "Public Health and Preventive Medicine in Private Practice."

Construction at Fairfield State Hospital

Plans have been announced for two continued-treatment buildings for the Fairfield State Hospital at Newtown, each building to have a rated patient capacity of 420. In the previous building program of the institution a Reception Hospital for the treatment of early acute cases was provided; there was also constructed a General Hospital for the care of the strictly medical and surgical cases. The units now to be constructed, one for either sex, are for the care of well-adjusted patients requiring prolonged or indefinite hospitalization, but who, in general, are able-bodied and require, in relation to other patients, a lesser amount of medical, psychiatric and nursing care.

Medical Information Bureau Meeting

On April 13 at a meeting in Hartford sponsored by the Medical Information Bureau, Dr. Herman Lande, of Mt. Sinai Hospital, New York, presented the plan for a paid diagnostic clinic as it now operates in New York City. The clinic was established in 1930, is maintained for the benefit of persons whose combined family income is not above $4000 annually, and returns to the staff physicians half the payments received. The clinic is now taxed to its capacity.

New England Society of Psychiatry

The New England Society of Psychiatry held its annual meeting April 26 at the Neuro-Psychiatric Institute of the Hartford Retreat. Dr. Louis H. Cohen, of the Research Service, Worcester State Hospital, gave the principal paper on "The Treatment of Schizophrenia with Metrazol." Dr. Harlan L. Paine, of the Grafton (Massachusetts) State Hospital, was elected president of the society. The meeting was well attended by prominent psychiatrists from New England, New York and the District of Columbia.

Connecticut Society for Mental Hygiene

The thirtieth anniversary of the Connecticut Society for Mental Hygiene, originator of activities that have become national and international, was celebrated in New Haven on May 5 and 6. The program included a founders' dinner at the Faculty Club, formerly the home of Prof. Anson P. Stokes, where the society was formed.

Deaths

SELLECK — Nathaniel Selleck, M.D., for twenty years president of the Danbury Board of Education, died in that city on March 13. Dr. Selleck was born in Danbury, November 2, 1868, and had been a lifelong resident of that place. He was graduated from the Medical Division of the University of the City of New York in 1891, and went to Danbury where he had practiced until his final illness. He was prominent in community affairs and was actively interested in politics. On more than one occasion he was considered as Democratic nominee for mayor, but always declined. He was a member of the staff of the Danbury Hospital and senior member of the medical staff. He was a member of the Danbury Medical Society and the Fairfield County Medical Association. He was a 32nd degree Mason, and also a member of Pyramid Temple, Mystic Shrine, and of Danbury Lodge of Elks. He is survived by his widow, a son, Dr. Nathaniel B. Selleck, and two grandsons.

ELLIOTT — Calvin H. Elliott, M.D., of Hartford, died March 15 in Tucson, Arizona, where he had been staying since late in December. Dr. Elliott had been a member of the Hartford Hospital staff since 1916 and was consulting gynecologist and obstetrician for many hospitals around Hartford. He was a graduate of Bucknell University and of Jefferson Medical School. About fifteen years ago Dr. Elliott received a life-saving medal from the American Red Cross for a daring piece of rescue work accomplished at North Truro, Massachusetts. He was a member of the American and Hartford County medical association, the Hartford and Connecticut State medical societies and the New England Obstetrical and Gynecological Society. He was also a fellow of the American College of Surgeons and a member of the Wadsworth Atheneum, the Hartford Golf Club, Sphinx Temple, Mystic Shrine, and the Hartford Rotary Club. He is survived by his widow, a daughter, Marie-Luise, and a son, Calvin H., Jr.

NETTLETON — Francis I. Nettleton, M.D., health officer and former mayor of Shelton for ten years, died March 19, after an illness dating from last November. A native of Shelton, he was born October 23, 1874, the son of Charles O. and Frances Hallock Nettleton. He was graduated from the Sheffield School of Science in 1894, then entered Yale School of Medicine and was graduated in

1897. After a year as intern in Backus Hospital, Norwich, he began his practice in Shelton. He was a member of various Masonic groups, including Knights Templar and Mystic Shrine, and was also affiliated with the Connecticut State Medical Society and the New Haven and Fairfield County medical societies.

STILLMAN — Charles K. Stillman, M.D., prominent in civic affairs, died in Mystic on March 22. Born July 15, 1879, in Plainfield, New Jersey, he was the son of the late Dr. Charles F. Stillman and Harriet Greenman Stillman, who survives him. His grandparents were prominent shipbuilders. Because of a difference between his parents when he was a boy, his father put him in the Cheltenham Military School in Pennsylvania, from which he was graduated in 1896. Returning then to his mother's custody, he went to Brown, was graduated in 1900 and went to Columbia Medical School, graduating in 1904. He interned at Bellevue Hospital and practiced in New York City several years. About twenty years ago he returned to Mystic where he practiced until ill-health caused his retirement. Dr. Stillman was a lieutenant during the World War, stationed at Camp Wheeler in Georgia. He was a member of the Mystic Hook and Ladder Company, the Southern New England Fishermen's Association, and an organizer and officer of the Mystic Marine Historical Society.

HOLMES — Le Verne Holmes, M.D., chief orthopedic surgeon at Manchester Memorial Hospital, died suddenly of coronary thrombosis at the home of his daughter, Mrs. John Sinkinson, of Scarsdale, New York; he was in his fifty-ninth year. Dr. Holmes had been attending a conference and clinic of the College of Surgeons in New York City and was scheduled to return home the next day. Dr. Holmes was made medical examiner in April, 1935, and prior to that was assistant medical examiner for fifteen years. A native of Richmondville, New York, Dr. Holmes saw service in the Spanish-American and the World wars. In the latter conflict, he was a lieutenant in the medical corps, specializing in orthopedic surgery. At the time of his death, he held a rank of lieutenant colonel, Medical Reserve Corps, 76th Division. He joined the hospital staff in Manchester on its opening in 1920 and on January 1, 1923, was placed in charge of the orthopedic service. Prior to that he served as school physician. Following graduation from Boston University School of Medicine in 1904, he served an internship at the Massachusetts Homeopathic Hospital, Boston, and began private practice in Arlington, Massachusetts. He went to Manchester in 1910 and, with the exception of his service in the World War, had practiced there since that time. He was vice-president of the attending staff of physicians at the hospital and was secretary-treasurer of the Manchester Medical Association. Prominent in civic affairs, he was vice-president of the Y. M. C. A., president of the Manchester Country Club and a member of the Chamber of Commerce. He was a member of the Manchester Lodge of Masons, the Odd Fellows, and the Dilworth-Cornell Post, A. L. He was also a member of the Hartford County and Connecticut State medical societies and the American Medical Association. Besides his daughter, he is survived by his widow, Mrs. Ruth C. (Wiswall) Holmes, his father, Reuben Holmes, of Blenheim, New York, and a brother, Lindsay Holmes, of Cedar Falls, Iowa.

RING — Henry W. Ring, M.D., prominent retired eye and ear specialist and a former ophthalmologist at Yale University, died on April 3 at New Haven at the age of eighty-one. He was a native of Portland, Maine, and was graduated from Bowdoin College in the class of 1879 and from Bowdoin Medical School in 1887. After starting practice in New Haven in 1889, Dr. Ring became acting and consulting ophthalmologist at the New Haven Hospital and secretary of the Board of Directors. He retired in 1925 and for the next ten years was ophthalmologist in the Department of Health at Yale. He was responsible for passage of a law in Connecticut for prevention of blindness of the new born. Dr. Ring was a former president of the New York Ophthalmological Society.

KELLY — James F. Kelly, M.D., physician and pathologist, died at St. Francis Hospital, April 3, of injuries received in a fall at his home less than an hour earlier; he was thirty-one years old. He had opened his practice only a little more than a year ago. A native of Hartford, Dr. Kelly was graduated from Trinity College in 1929 and from Yale Medical School in 1933. He served his internship at the Meriden Hospital and at St. Francis Hospital. Following special training in pathology in Toronto, Canada, he began practicing in Hartford in January, 1937. Dr. Kelly was a member of the Hartford Medical Society, the Hartford County Medical Association and the Connecticut State Medical Society. He was not married. He was the son of Mrs. Mary Callahan Kelly, of Hartford, and the late James J. Kelly. Besides his mother, he is survived by a sister, Miss Ruth M. Kelly, of Hartford.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR APRIL, 1938

DISEASES	APRIL 1938	APRIL 1937	FIVE-YEAR AVERAGE*
Anterior poliomyelitis	0	0	1
Chickenpox	1301	1493	1136
Diphtheria	16	11	39
Dog bite	964	990	845
German measles	104	157	1932
Gonorrhea	399	453	453
Lobar pneumonia	542	646	521
Measles	1437	2983	4364
Meningococcus meningitis	7	30	16
Mumps	1107	785	956
Paratyphoid B	6	34	7
Scarlet fever	1640	1172	1212
Syphilis	516	560	460
Tuberculosis, pulmonary	447	339	299
Tuberculosis, other forms	48	30	33
Typhoid fever	3	4	8
Undulant fever	2	3	3
Whooping cough	421	1421	956

*Based on figures for preceding five years.

RARE DISEASES

Diphtheria was reported from: Danvers, 1; Fall River, 1; Lexington, 6; Melrose, 1; Salem, 1; Somerville, 1; Westwood, 1; Worcester, 4; total, 16.

Meningococcus meningitis was reported from: Beverly, 1; Boston, 3; Franklin, 1; Holyoke, 1; New Bedford, 1; total, 7.

Paratyphoid B was reported from: Fall River, 2; Lynn, 3; Reading, 1; total, 6.

Pfeiffer bacillus meningitis was reported from Spencer, 1.

Septic sore throat was reported from: Arlington, 1; Boston, 4; Cambridge, 2; Greenfield, 1; Lawrence, 2; Lexington, 1; Lowell, 1; Lynn, 13; Randolph, 1; Salem, 1; Waltham, 1; total, 28.

Trichinosis was reported from Boston, 4.

Typhoid fever was reported from: Brookline, 1; Revere, 1; Watertown, 1; total, 3.

Undulant fever was reported from: Clarksburg, 1; Sturbridge Center, 1; total, 2.

The incidence of chickenpox dropped from a record high of three months' duration to a more normal figure.

Lobar pneumonia, pulmonary tuberculosis, mumps and tuberculosis (other forms) were reported above the five-year average.

The incidence of diphtheria was considerably below the five-year average.

Typhoid fever continued to show low incidence.

The incidences of German measles, measles, whooping cough and meningococcus meningitis were below the five-year average.

Paratyphoid fever continued to be reported from several points throughout the State.

The incidence of undulant fever was not remarkable.

The reported incidence of dog bite showed a considerable increase since last month. Several cases of animal rabies were reported throughout the State. A new focus was noted in Worcester. Older foci in Cambridge, Rowley and Stoughton were active.

NEW FILM ON TUBERCULOSIS

Four authorities on tuberculosis do the talking in the National Tuberculosis Association's new medical film, "Diagnostic Procedure in Tuberculosis," which will be released early in the summer.

The film, which lasts twenty-five minutes, will be shown by local tuberculosis associations throughout the United States before medical and health groups. It is the first movie of its kind in sound produced by the National Tuberculosis Association.

The doctors who participate in the film are Dr. Kendall Emerson, managing director of the National Tuberculosis Association, New York City; Dr. Ralph S. Muckenfuss, director of the Bureau of Laboratories, New York City Department of Health; Dr. Esmond R. Long, director of the Henry Phipps Institute, Philadelphia; and Dr. Edgar Mayer, assistant professor of medicine, Cornell University Medical College, New York.

Dr. Emerson is the narrator and in his introductory remarks says: "In the front line of the fight against tuberculosis is the general practitioner. He sees the patient first and upon his skill and judgment depends the patient's future. The greatest service he can render is to make the diagnosis correctly and without delay. There are certain diagnostic procedures every general practitioner is capable of carrying out." Dr. Emerson then introduces the speakers.

Dr. Muckenfuss demonstrates a simple technic of sputum examination. The making and reading of the tuberculin test are explained by Dr. Long. Dr. Mayer explains the x-ray as a means of diagnosing tuberculosis and the fundamental facts of x-ray interpretation.

ANNUAL PRIZE SUBSCRIPTION

The annual prize subscription offered by the *New England Journal of Medicine* for the best undergraduate contribution to the *Tufts College Medical Journal* has been awarded for the current year to Bromisalaus A. Guluska, M '39. His paper "Trichiniasis" was published in the January, 1938, issue.

NOTE

At the recent annual meeting of the Harvey Cushing Society in Memphis, Tennessee, Dr. Louise Eisenhardt, of New Haven, was elected president and Dr. William J. German, of New Haven, secretary. The next annual meeting will be held at New Haven.

CORRESPONDENCE

PUBLIC-HEALTH ADMINISTRATION

To the Editor: In view of recent events at the State House, it may be of interest to recall some of the things leading to the reorganization of the old Board of Health into the present Department of Public Health.

The late Edward F. McSweeny was the first active factor in the change. In his work at Ellis Island, he had come in contact with men of the United States Public Health Service and had become profoundly impressed with their earnestness and vision, and their disinterested desire to care for the health of the people of the United States. He had been particularly impressed with the work and ability of Dr. Victor Heiser, now known to many as the author of *An American Doctor's Odyssey*.

Mr. McSweeny entertained Governor Walsh at his summer camp one week-end, and called his attention to the fact that Dr. Walcott's term would expire and that the Governor would be called upon to make a new appointment. He talked about public health throughout the whole week end, and Governor Walsh was well prepared when Dr. Walcott told him that because of his age he could not accept a reappointment and told him about public-health duties. He also understood, when Dr. Enos H. Bigelow, a representative at the State House, offered his assistance in any attempt at reorganization of the Board of Health, for which a number of petitions had been presented to the legislature. And in a message to the legislature the Governor recommended that there should be a reorganization of the Board of Health.

The year previous, the State of New York had reorganized its Department of Public Health, a bill with very elaborate details having been passed by the New York legislature. On a trip to New York, the writer interviewed both Dr. Herman Biggs, who had been made commissioner, and Homer Folks, who had been largely instrumental in securing the passage of the bill. They both were satisfied with the bill as it had been enacted, and had no important amendments to offer. With this report and a copy of the bill, the committee of the Massachusetts Medical Society had the basis for drawing a bill adapted to the needs of Massachusetts.

An official group of physicians specially interested in public-health matters held a meeting, which Dr. Walcott was invited to attend and state his ideas as to a reorganization of his board. He accepted the invitation but presented no really constructive ideas. While the good work that he had accomplished in the long years as chairman of the board was deeply appreciated, those at the meeting were disappointed to receive no forward-looking message of guidance. However, a committee was appointed to try and draw up a bill to present to the legislature.

This committee met, considered the New York bill with its commissioner, district health officers, Department of Communicable Diseases, and so forth, and instructed one of its members to put the various suggestions into proper form. When this was done, and the bill had the approval of Governor Walsh, — it contained several of his personal suggestions, — it was introduced into the legislature by Dr. Bigelow.

Meantime, Mr. McSweeny made the suggestion that the Governor should get the promise of Dr. Heiser, then in the Philippines, that he would accept the position of commissioner should the bill become a law. Receiving a favorable answer, Governor Walsh went to a meeting of the Council of the Massachusetts Medical Society, gave his approval of the bill, and solemnly promised that he, on

the enactment of the legislation, would give to the State of Massachusetts a commissioner of the highest standing.

As soon as the bill was introduced, quiet but vigorous opposition developed, the *Boston Evening Transcript* taking the lead. Although the Governor and many physicians and laymen appeared in its support, when it emerged from the committee, it was hardly a skeleton of the original bill.

Dr. Biggs, the New York commissioner, chanced to be in town, read the bill and pronounced it a workable, though not ideal, piece of legislation.

With that endorsement from such an astute politician, the committee was encouraged to continue its efforts to have the bill enacted. But at one of the last hearings before the Senate Ways and Means Committee, the representatives of the doctors were astonished to have an assistant from the Board of Health appear and say that he had been instructed by the author of the original draft of the bill to appear before the committee and state that he considered the bill then before the Senate unworkable, and therefore, that he withdrew his approval of the proposed legislation.

In spite of this unexpected blow, Governor Walsh was able to win over the chairman of the Ways and Means Committee to support the bill and it was passed at the final session of the legislature early in July, 1914.

The legislature adjourned, and the bill was a law; a new commissioner was to be appointed, but Dr. Heiser could not be found. Even his best friends could not locate him. A commissioner *pro tem* was appointed, and finally the missing Dr. Heiser reported to the Governor that, as he had heard nothing from Massachusetts for over six months, he had concluded that the legislation had not been enacted and that he had yielded to the offer of the Rockefeller Foundation to become its health agent — an office which he has so efficiently filled. He suggested to the Governor the names of three men in the United States Public Health Service, who, he was sure, would be able to organize the new department.

Soon after this, the Governor was thrown from his horse and was laid up with a broken arm. Only a few knew of the fact that Dr. Heiser was unable to take the post. This knowledge was kept secret, as the Governor was most anxious to redeem his pledge that the new commissioner should be a man of undoubted ability and with public-health training.

Finally, he asked Mr. McSweeny and the writer to go to Washington to see President Wilson and ask that Massachusetts should be given, for a term of years, an able man from the United States Public Health Service to assume the duty of organizing the new Department of Public Health. Mr. McSweeny was to represent that here was a Democratic governor in a then Republican state who had promised that he would give to the doctors and the people of the State an efficient, well-trained health commissioner, and that the loss of their support would be fatal in an uphill fight for re-election.

Although Mr. McSweeny did not see the President, he did interview Surgeon General Blue. The three names were given to him, and he was asked for one of them. The Surgeon General threw up his hands in horror and said, "You gentlemen have named the three best men in the service. I cannot let one of them go." He offered a substitute, who, on investigation, was found to be undesirable for this position.

The following day, Surgeon General Blue finally agreed that Dr. Alan J. McLaughlin, one of the men asked for, might be released when a piece of work on which he was engaged was finished. Then, for one reason or another, the negotiations dragged until Governor Walsh, taking an active hand in the matter, communicated directly with Dr. McLaughlin, and the appointment was made.

Thus, Governor Walsh redeemed his pledge that he would appoint, as the commissioner of public health, a man highly trained in public-health matters.

ARTHUR K. STONE, M.D.

Framingham Center,
Massachusetts.

INSURANCE COMPANIES THAT HAVE ACCEPTED THE GENTLEMEN'S AGREEMENT

To the Editor: I have been asked a number of times for the names of the insurance companies which have accepted the Gentlemen's Agreement. I am enclosing such a list and believe it would be advisable to have it published in the *Journal* so that each member of the Society could know the companies that are included.

H. M. LANDESMAN, M.D.

366 Commonwealth Avenue,
Boston, Mass.

* * *

The list of insurance companies doing business in Massachusetts under the Gentlemen's Agreement is as follows:

Accident and Casualty Insurance Company of Winterthur, Switzerland, of New York, New York, N. Y.
Aetna Casualty and Surety Company, Hartford, Conn.
Aetna Life Insurance Company, Hartford, Conn.
American Automobile Insurance Company, St. Louis, Mo.
American Bonding Company of Baltimore, Baltimore, Md.
American Casualty Company, Reading, Pa.
American Employers' Insurance Company, Boston, Mass.
American Surety Company of New York, New York, N. Y.
American Re-Insurance Company, New York, N. Y.
Associated Indemnity Corporation, San Francisco, Calif.
Bankers Indemnity Insurance Company, Newark, N. J.
Car and General Insurance Corporation, Limited, New York, N. Y.
Central Surety and Insurance Corporation, Kansas City, Mo.
Century Indemnity Company, Hartford, Conn.
Columbia Casualty Company, New York, N. Y.
Commercial Casualty Insurance Company, Newark, N. J.
Continental Casualty Company, Chicago, Ill.
Eagle Indemnity Company, New York, N. Y.
Employers' Liability Assurance Corporation, Limited, Boston, Mass.
Employers' Reinsurance Corporation, Kansas City, Mo.
European General Reinsurance Company, Limited, New York, N. Y.
Fidelity and Casualty Company of New York, New York, N. Y.
Fidelity and Deposit Company of Maryland, Baltimore, Md.
Fireman's Fund Indemnity Company, San Francisco, Calif.
First Reinsurance Company of Hartford, Hartford, Conn.
General Accident, Fire and Life Assurance Corporation, Limited, Philadelphia, Pa.
General Reinsurance Corporation, New York, N. Y.
Glens Falls Indemnity Company, Glens Falls, N. Y.
Globe Indemnity Company, New York, N. Y.
Great American Indemnity Company, New York, N. Y.
Hartford Accident and Indemnity Company, Hartford, Conn.
Hartford Steam Boiler Inspection and Insurance Company, Hartford, Conn.

Home Indemnity Company, New York, N. Y.
Indemnity Insurance Company of North America, Philadelphia, Pa.
London and Lancashire Indemnity Company, Hartford, Conn.
London Guarantee and Accident Company, Limited, New York, N. Y.
Maryland Casualty Company, Baltimore, Md.
Massachusetts Bonding and Insurance Company, Boston, Mass.
Metropolitan Casualty Insurance Company of New York, Newark, N. J.
National Casualty Company, Detroit, Mich.
National Surety Corporation, New York, N. Y.
New Amsterdam Casualty Company, Baltimore, Md.
New York Casualty Company, New York, N. Y.
Norwich Union Indemnity Company, New York, N. Y.
Ocean Accident and Guarantee Corporation, Limited, New York, N. Y.
Oregon Automobile Insurance Company of Portland, Portland, Oregon.
Pacific Indemnity Company, Los Angeles, Calif.
Phoenix Indemnity Company, New York, N. Y.
Preferred Accident Insurance Company, New York, N. Y.
Royal Indemnity Company, New York, N. Y.
Seaboard Surety Company, New York, N. Y.
Standard Accident Insurance Company, Detroit, Mich.
Standard Surety and Casualty Company of New York, New York, N. Y.
Sun Indemnity Company, New York, N. Y.
Travelers Insurance Company, Hartford, Conn.
Travelers Indemnity Company, Hartford, Conn.
United States Casualty Company, New York, N. Y.
United States Fidelity and Guaranty Company, Baltimore, Md.
United States Guarantee Company, New York, N. Y.
Yorkshire Indemnity Company, New York, N. Y.
Zurich General Accident and Liability Insurance Company, Limited, Chicago, Ill.

American Mutual Liability Insurance Company, Boston, Mass.
Liberty Mutual Insurance Company, Boston, Mass.
Lumbermens Mutual Casualty Company, Boston, Mass.
Merchants Mutual Casualty Company, Boston, Mass.

RESTORATION OF LICENSE

To the Editor: This is to inform you that at the meeting of the Board of Registration in Medicine held April 28, it was voted to restore the certificate of registration of Dr. Russell B. Street, of Conway.

STEPHEN RUSHMORE, M.D., *Secretary.*

Board of Registration in Medicine,
State House, Boston.

HEALTH CONSERVATION CONTEST

To the Editor: The trophy awarded to the Boston Chamber of Commerce, in recognition of Boston's achievement in winning the 1937 Inter-City Health Conservation Contest for cities of 500,000 or over, now adorns the office of the Boston Health Commissioner.

All agencies and individuals who contributed to the winning of the award, as well as all others interested, are cordially invited to come to the office of the Health Commissioner in order to see this trophy, which is a bronze tablet or plaque.

The Boston Health Department takes this occasion again to express its thanks to all who, by their co-operation and by their contribution of data upon preventive-medicine measures, aided in the winning of this award.

H. F. R. WATTS, M.D., *Health Commissioner.*

City Hall Annex,
Boston.

GOVERNMENTAL CONTROL OF THERAPEUTIC PREPARATIONS

To the Editor: The American Society for Pharmacology and Experimental Therapeutics unanimously adopted the following resolution at its twenty-ninth annual meeting held in Baltimore, Maryland, April 2:

> The American Society for Pharmacology and Experimental Therapeutics, Inc., views with alarm the lack of statutory regulation of the sale or use of dangerous therapeutic preparations, which result in such tragedies as the recent series of deaths from Elixir of Sulphanilamide and from contaminated serum. Furthermore, the present and increasing promiscuous use by the public and especially the youth of this country of drugs having either a pronounced stimulating effect or a profound depressing effect on the nervous system is an alarming situation calling for immediate remedial measures in the interest of public health and safety. Therefore, the American Society for Pharmacology and Experimental Therapeutics, Inc., in annual meeting assembled, respectfully but firmly urges that the governmental authorities, through Congress, be given the necessary power to regulate the sale to or the use by the general public of such preparations as are dangerous or inimical to public health and safety. Be it further resolved that new or untried drugs should not be allowed to come into use by the general public before authoritative sanction has been obtained. Be it further resolved that copies of this resolution be sent to all appropriate governmental and medical organizations.

G. P. GRABFIELD, M.D., *Secretary.*

319 Longwood Avenue,
Boston.

REPORT OF MEETING

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY

A meeting of the Boston Society of Psychiatry and Neurology was held at the Boston Medical Library on April 21. Dr. Tracy J. Putnam presided. Following a brief business meeting, four papers were presented.

The first paper was given by Dr. Putnam and dealt with "The Relief of Unilateral Paralysis Agitans by Section of the Pyramidal Tract." Two patients were shown, with moving-picture demonstrations of their symptoms prior to operation. The first patient was a fifty-seven-year-old man with incapacitating paralysis agitans affecting the left side. Following section of the left pyramidal tract, his tremor subsided almost completely, and he was able to perform many co-ordinated movements which had previously been impossible. The second patient was a thirty-two-year-old woman, who had been almost totally incapacitated by paralysis agitans on her right side. She showed almost complete relief of tremor following section of the right pyramidal tract. Both these patients showed no impairment of voluntary motor power and co-ordination postoperatively. In the first patient the abnormal reflexes (Hoffmann, Babinski, Gordon, Rossolimo, and so forth) of pyramidal-tract damage appeared

postoperatively. In the second patient there had been some signs of pyramidal-tract disease present before operation, and no increase in these could be determined postoperatively. Other types of operation for paralysis agitans have been reported in the literature as unsuccessful, including anterior-quadrant section of the extrapyramidal fibers and also section of the posterior columns.

The second paper of the evening was presented by Dr. Paul F. A. Hoefer and Dr. Putnam on "Electromyographic Studies in Spastic Conditions and in Paralysis Agitans." Dr. Hoefer demonstrated a series of electromyographic tracings from the muscles of patients. Potentials were determined by superficial leads on the skin and by penetrating muscle electrodes. It was found that the ankle clonus of spastic extremities was composed of rhythmic bursts of action impulses with quiescent intervals. Each burst had a definite pattern of amplitude. Single ankle jerks in normals were found to consist of single diphasic discharges. It was possible to get contralateral reflex discharges in spastics, and also homolateral reflexes from other muscles of the same side. Single ankle jerks in spastics were followed by an afterdischarge.

Electromyographic recordings in paralysis agitans showed a rhythmic, regular series of discharges with quiescent intervals, bearing a close resemblance to the tracings in spastic clonus. In patients with unilateral tremors, it was possible to record faint rhythmic discharges from muscles on the unaffected side. In several cases of generalized tremor, leads were taken from numerous muscle groups including the masseter and calf muscles. In these cases, it was found that the rhythm of discharge was the same in all muscles, with variations only in intensity. This synchronicity of action impulses suggests a central discharging mechanism situated high in the neuraxis; the possibility is also brought up that the fibers carrying impulses to various muscles may have graded variations in their size, degree of myelinization and conduction time.

Patients with postencephalitic Parkinsonism without tremor showed irregular rhythmic discharges, suggesting the underlying mechanism of cogwheel rigidity.

The effect of curare on clonic tremors in several patients was studied electromyographically. A great reduction in the amplitude of rhythmic discharges was seen, which corresponded with the clinical improvement seen for twenty-four hours after curare administration.

The similarity between clonus and tremor has been commented on by numerous workers and is further substantiated by the electromyographic records. The central basis for the two mechanisms might be suggested to be the same. Further evidence for this is supplied by the results of pyramidal-tract section in paralysis agitans.

The third paper was presented by Dr. Wilfred Bloomberg, whose subject was "The Results in the Treatment of Chronic Alcoholism by Benzedrine: A preliminary report." Dr. Bloomberg discussed 10 cases of chronic alcoholism that have been under benzedrine treatment during the past year. Most of the cases were patients who had tried numerous other forms of therapy without success. The majority appeared to be definitely benefited by benzedrine, with the alcohol intake completely eliminated in some. It was suggested that the drug acted to relieve depression and to supply a "lift," during which alcohol was no longer necessary. It provides a promising means of producing a "latent interval" of sobriety for several months, during which time psychotherapy may be introduced with better effect.

Dr. Bloomberg also presented several slides showing the studies which have been made on a series of narcolepsy patients, who have been under intensive benzedrine treatment for the past two years. These included blood counts, metabolic determinations, blood-pressure readings, and cardiac, renal and hepatic studies. No abnormalities resulting from the drug could be found in any of the patients, some of whom had been receiving 120 mg. a day for two years. No symptoms of addiction were observed.

The final paper was presented by Dr. Joseph J. Michaels and Miss Sylvia E. Goodman; it was entitled "The Incidence and Age of Cessation of Enuresis in One Thousand Neuropsychiatric Patients." Dr. Michaels demonstrated a series of statistical studies made on 1000 patients at Ann Arbor, with 1000 representative normals as a control group. The highest incidence of enuresis, together with the longest persistence of enuresis, was found in the group of patients with psychiatric behavior problems and psychopathic personalities. The lowest incidence was encountered in the group of frank psychotics. The percentage of incidence in normals lay between these two groups.

Enuresis is a significant index of disharmony within the personality, indicating a lack of maturation. The frequent history of early enuresis with later delinquency suggests a disturbance in the fundamental psychobiologic mechanism.

NOTICES

CANADIAN MEDICAL ASSOCIATION

The Canadian Medical Association is holding its sixty-ninth annual meeting in Halifax, Nova Scotia, on June 20, 21, 22, 23 and 24. A highly interesting program consisting of approximately one hundred papers, clinics and demonstrations will be presented. To all fellows of the American Medical Association we extend a cordial invitation to attend. Registration as a guest will be effected upon presentation of a card of fellowship in the American Medical Association.

Inasmuch as the American Medical Association is holding its annual session this year in San Francisco, we should particularly like to remind the fellows residing in the New England states and on the Atlantic seaboard, that, if they find it inconvenient to attend their own meeting, a very hearty welcome awaits them in Halifax.

T. C. Routley, M.D., *General Secretary,*
Canadian Medical Association.

NEW ENGLAND SOCIETY OF PHYSICAL MEDICINE

There will be a special meeting of the New England Society of Physical Medicine in the Men's Lounge, Hotel Bradford, Thursday, June 2, following the program of the Section of Radiology and Physiotherapy of the Massachusetts Medical Society.

Members are urged to attend the excellent program of the section in the Oval Room at 9:30 a. m.

William D. McFee, M.D., *Secretary.*

RADIO BROADCASTS

The ninth group of weekly broadcasts sponsored by the American Medical Association and the National Broadcasting Company concern health knowledge. These dramatized health messages are intended to furnish supplementary material for health teaching in junior and senior high schools and are broadcast every Wednesday

from 2:00 to 2:30 p. m. over the Red Network. The dates and subjects are as follows:

June 1 — Vacation Plays and Mis-plays. Making the vacation a real contribution to health and recreation.

June 8 — Graduation and Then What? A new phase of life begins at commencement, and health contributes to success.

June 15 — What Medicine Offers for Health. Flashes from the American Medical Association meeting at San Francisco, giving high lights of medical progress.

CLINICS FOR CRIPPLED CHILDREN IN MASSACHUSETTS, UNDER THE PROVISIONS OF THE SOCIAL SECURITY ACT

Clinic	Date	Orthopedic Consultant
Haverhill	June 1	Arthur T. Legg
Lowell	June 3	Albert H. Brewster
Salem	June 6	Harold C. Bean
Brockton	June 9	George W. Van Gorder
Gardner	June 14	Mark H. Rogers
Springfield	June 15	Garry deN. Hough, Jr.
Worcester	June 17	John W. O'Meara
Pittsfield	June 20	Francis A. Slowick
Fall River	June 27	Eugene A. McCarthy
Hyannis	June 28	Paul L. Norton

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The oral, clinical and pathological examinations for Group A and Group B applicants will be held in San Francisco, California, on Monday and Tuesday, June 13 and 14.

An informal dinner for the diplomates of the board, their wives and others interested in the work of the board, will be held at the Palace Hotel, San Francisco, on Wednesday evening, June 15, at 7:00. Dr. William D. Cutter, secretary of the Council on Medical Education and Hospitals of the American Medical Association, will address the group.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, *Secretary*, 1015 Highland Building, Pittsburgh, Pennsylvania.

SOCIETY MEETINGS AND CONFERENCES

Calendar of Boston District for the Week Beginning Monday, May 30

Tuesday, May 31

Massachusetts Medical Society, annual meeting. Hotel Bradford, Boston.

9:30 a. m. Massachusetts General Hospital. Thoracic clinic. Ether Dome.

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

12:15 p. m. Tufts Medical Alumni luncheon. Hotel Bradford, Boston.

12:30 p. m. Harvard Medical Alumni luncheon. Hotel Bradford, Boston.

3-5 p. m. New England Regional Committee on Fractures of the American College of Surgeons. Hotel Bradford, Boston.

Wednesday, June 1

Massachusetts Medical Society, annual meeting. Hotel Bradford, Boston.

8 a. m. Massachusetts General Hospital. Grand rounds. Orthopedic Department.

12:30 p. m. New England Alumni, luncheon meeting, Baltimore Medical College, College of Physicians and Surgeons, University of Maryland Medical School. Hotel Statler, Boston.

2:30 p. m. Massachusetts Medico-Legal Society. Hotel Bradford, Boston.

Thursday, June 2

Massachusetts Medical Society, annual meeting. Hotel Bradford, Boston.

8 a. m. Massachusetts General Hospital. Circulatory clinic rounds.

11 a. m. Massachusetts General Hospital. Medical grand rounds.

12 m. Massachusetts General Hospital. Clinicopathological conference.

Friday, June 3

10 a. m. Massachusetts General Hospital. Fracture rounds.

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

Saturday, June 4

*10 a. m. - 12 m. Staff rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

*Open to the medical profession.

May 31 — Tufts Medical Alumni Luncheon. Page 858, issue of May 19.

May 31 — Harvard Medical Alumni Association. Page 858, issue of May 19.

May 31 — The New England Regional Committee on Fractures of the American College of Surgeons. Page 858, issue of May 19.

May 31, June 1 and 2 — Annual meeting of the Massachusetts Medical Society. Hotel Bradford, Boston.

June 1 — Massachusetts Medico-Legal Society. Page 858, issue of May 19.

June 1 — New England Alumni, Baltimore Medical College, College of Physicians and Surgeons, University of Maryland Medical School. Page 858, issue of May 19.

June 1 and 2 — National Society for the Advancement of Gastroenterology. Page 746, issue of April 28.

June 2 — New England Society of Physical Medicine. Page 902.

June 6, 7, 8, and 9 — American Association of Industrial Physicians. Page 499, issue of March 17.

June 10 and 11 — American Heart Association. Page 707, issue of April 21.

June 13, 14 and 15 — American Board of Obstetrics and Gynecology. Notice above.

June 13-17 — American Medical Association. San Francisco.

June 13, October 8 and November 15 — American Board of Ophthalmology. Page 282, issue of February 10.

June 20-24 — Canadian Medical Association. Page 902.

June 23 — Pentucket Association of Physicians. Hotel Bartlett, 95 Main Street, Haverhill, 8:30 p. m.

September 12-14 — American Association for the Study of Goiter. Page 545, issue of March 24.

October 17-21 — Clinical Congress of the American College of Surgeons, New York City.

October 24-26 — Academy of Physical Medicine, Scientific Session. Washington, D. C.

District Medical Societies

HAMPDEN

Meeting will be held on the fourth Tuesday in July.

PLYMOUTH

Meeting will be held at 11 a. m. on July 21.

BOOKS RECEIVED FOR REVIEW

Histological Technique: For normal tissues, morbid changes and the identification of parasites. H. M. Carleton and E. H. Leach. Second edition. 383 pp. London, New York and Toronto: Oxford University Press, 1938. $7.25.

Thoracic Surgery: A revised and abridged edition of Sauerbruch's Die Chirurgie der Brustorgane. Ferdinand Sauerbruch and Laurence O'Shaughnessy. 394 pp. Baltimore: William Wood & Company, 1937. $13.50.

Sex Satisfaction and Happy Marriage. Alfred Henry Tyrer. 160 pp. New York: Emerson Books, Incorporated, 1938. $2.00.

Play and Mental Health: Principles and practice for teachers. John Eisele Davis. 202 pp. New York: A. S. Barnes & Company, 1938. $2.50.

A Manual of Operating Room Procedures. Almira W. Hoppe and Lucile M. Halverson. 239 pp. Minneapolis: The University of Minnesota Press, 1938. $2.00.

A Practical Guide to Massage. C. Irene Carpenter. 127 pp. Baltimore: William Wood & Company, 1937. $2.00.

A Text-Book of Pharmaceutics. Arthur Owen Bentley. Fourth edition. 1001 pp. Baltimore: William Wood & Company, 1937. $5.00.

Massage and Remedial Exercises in Medical and Surgical Conditions. Noël M. Tidy. Third edition. 456 pp. Baltimore: William Wood & Company, 1937. $5.25.

A Manual of Tuberculosis: For nurses and public health workers. E. Ashworth Underwood. Second edition. 404 pp. Baltimore: William Wood & Company, 1938. $3.25.

Clinical Chemistry in Practical Medicine. C. P. Stewart and D. M. Dunlop. Second edition. 372 pp. Baltimore: William Wood & Company, 1937. $4.00.

Athletic Injuries: Prevention, diagnosis and treatment. Augustus Thorndike, Jr. 208 pp. Philadelphia: Lea & Febiger, 1938. $3.00.

The Hospital Head Nurse: Her functions and her preparation. Mary Marvin Wayland. Edited by Isabel M. Stewart. 388 pp. New York: The Macmillan Company, 1938. $3.50.

Leukemia and Allied Disorders. Claude E. Forkner. 333 pp. New York: The Macmillan Company, 1938. $5.00.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume 106. 634 pp. New York: The Rockefeller Institute for Medical Research, 1938. $2.00.

A Text-Book of Pathology: An introduction to medicine. William Boyd. 1064 pp. Philadelphia: Lea & Febiger, 1938. $10.00.

Civilization and Disease. C. P. Donnison. 222 pp. Baltimore: William Wood & Company, 1938. $3.00.

Essentials of Psychiatry. George W. Henry. Third edition. 465 pp. Baltimore: The Williams & Wilkins Company, 1938. $5.00.

The Practice of Urology. Leon Herman. 923 pp. Philadelphia and London: W. B. Saunders Company, 1938. $10.00.

A Textbook of Clinical Pathology. Edited by Roy R. Kracke. 567 pp. Baltimore: William Wood & Company, 1938. $6.00.

BOOK REVIEWS

The Patient and the Weather. William F. Petersen, with the assistance of Margaret E. Milliken. Volume 4, Part 3. 651 pp. Ann Arbor: Edwards Brothers, Inc., 1938. $10.00.

This third part of Volume 4 of the monographs on *The Patient and the Weather* deals with surgical problems of organic disease. Petersen in the preface states: "Superficially it links the patient who may be suffering from an acute abdominal condition to meteorological environment. . . . But the mere precipitation of the acute clinical event by meteorological change is not of ultimate significance for the broader problem. . . . If the acute episode is so conditioned . . ., the pathogenesis may in some fashion be associated with the meteorological environment as one of a series of factors in the constellation." Many modern surgeons may be chagrined to learn that this is no new approach to their field of work but dates back to a dictum of Hippocrates: "One should be especially on one's guard against the most violent changes of the seasons, and unless compelled, one should neither purge nor apply cautery or knife to the bowels, until at least ten days have passed."

In the previous monographs in this series the scientific explanation of the effect of meteorologic change has been discussed. In part this effect is one of vasomotor and neuromuscular dysfunction. For the tissue phase of increasing blood pressure, that is, the relative closure of portions of the vascular bed, Petersen uses the designation ARS, for during this status there is a relative anoxemia, anabolism, reduction and spasm, with higher pH and enhanced adrenal effectiveness. His COD phase is one of decreasing blood pressure — a period of catabolism, oxidation and dilatation of vessels, with "thyroid" preponderance. A pressor increase (ARS) may be due to a meteorologic alteration (polar infall, unusual heat or humidity), emotional or physical trauma, exertion or infection; therefore ARS is a sympathicotonic phase.

The author suggests several observations which have a bearing on general surgical problems: the role of smooth-muscle spasm (vascular as well as visceral), and its associated anoxia of related mucous membranes, for necrosis and bacterial penetration; the rhythm of organic stimulation and of overstimulation and fatigue as it concerns resistance, and the relation of this to season, to the individual meteorologic episode, to the menstrual cycle, and so forth.

This large quarto book contains 482 graphs and tables and numerous case histories. In the introductory chapter Petersen discusses the effect of environment on the "humors," infection and inflammation. The major themes of the succeeding thirteen chapters are ulcer of the stomach and duodenum, Meckel's diverticulum, the gall bladder, acute pancreatitis, appendicitis, disturbances of the bowels, ectopic pregnancy, postoperative complications, vascular accidents, brain abscess, meningitis, orthopedic cases, ophthalmological episodes, and the endemiology of surgical diseases. References to the literature are given in copious footnotes.

Before specifically presenting, by case histories and charts, the coincidence of clinical episodes and weather changes in the several diseases under consideration, the author discusses the recent concepts of their pathogenesis. These discussions should be of great interest to surgeons, particularly those concerning peptic ulcer and appendicitis. The larger charts, which combine meteorologic and clinical data, are soon comprehended. Unusual episodes in the course of cases are designated by numerals in circles. These episodes are similarly marked in the case histories. The effect of seasonal and sun-spot cycles is discussed. Every surgeon need not be a meteorologist or astronomer, but every thoughtful surgeon will profit by examining this work by Petersen.

In an effort to make the publication of scholarly and technical books in small editions pay for themselves, publishers are making use of the photolithograph process from perfect type script; the pages are large, but the type clear and easily readable.

Man Against Himself. Karl A. Menninger. 485 pp. New York: Harcourt, Brace and Company, 1938. $3.75.

This book unfortunately is not scientific. It seemingly is written for lay readers, but even lay readers will hesitate to accept such a statement as, "In the unconscious we are still animals and there is no reason to believe that any animal fears death."

The book is interesting for what the writer discloses rather than what he headlines. The statement, "The fourth section deals with an extension of the theory of self-destruction to the problem of physical disease, an extension which must be considered, as yet, largely hypothetical," discloses an unexpected hesitance on the part of the author — a Freudian disciple — to maintain the undisputable authenticity of his theories. Also, the remark of the author, "I have a large file full of such clippings," when referring to the suicides of former patients, discloses what many have feared that as a type of therapy the Freudian, or perhaps better the pseudo-Freudian, doctrines may often upset unbalanced minds and result in suicide.

So far as assistance in handling the suicide problem is concerned this book adds little — in fact the author's suggestions seem far from novel, original or well expressed to anyone familiar with Christ's teachings.